

Antiquity

A QUARTERLY REVIEW OF ARCHAEOLOGY



Edited by Glyn Daniel

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EDITORIAL NOTICES

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2. By confining proof-corrections to mistakes. Alterations of the text can only be accepted in the most exceptional cases, e.g., the discovery or publication of new matter.
3. By returning the corrected proof at once to the Editor, by air-mail from overseas.

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O. G. S. Crawford (1886-1957)
Founder of *ANTIQUITY* and Editor 1927-57

See p. 1

[Photo (1954) : Irwin Scollar]

Antiquity

VOL. XXXII No. 125

MARCH 1958

Editorial

THIS, the 125th number of *ANTIQUITY*, is the first issue which does not contain from the pen of O. G. S. Crawford some of those Editorial Notes which, for the last thirty years, have enlivened our reading at the beginning of each quarter and endeared the late editor to us all. As he sent the December 1957 Editorial Notes to press Crawford had just heard of the death of Gordon Childe, and wrote: 'He will be mourned by archaeologists all over the world, and not least by the writer of these words, who had known him for over thirty years.' In the same week as these words were being published the writer of them was buried in Nursling Churchyard. He died in his sleep during the night of Thursday/Friday, 28/9 November. That evening he had returned home from giving evidence at a public enquiry held by the Minister of Town and Country Planning in Southampton about Southampton Corporation's proposals for the replanning of the city. He was there as President of the Friends of Old Southampton and had handed to the Ministry Inspector his own plan of medieval Southampton.

It has not been the practice of *ANTIQUITY* to devote any pages to obituary notices—to what the French, in a phrase that always seems peculiarly appropriate to archaeological journals, call *nécrologie*. If it had been so, this issue would be full of praise of the dead, for 1957 saw what seems to a member of a younger generation a holocaust of great men who had founded and practised modern archaeology. It suffices here to mention only Professor Seán Ó Ríordáin, Dr J. F. S. Stone, Dr Paul Jacobstahl, Dr Charles Seltman, Dr George Leisner, Professor A. J. B. Wace, and Professor Gordon Childe, as well as Crawford himself, to show what a loss good scholarship and sound learning have sustained in the last twelve months. Obituary notices of most of these will be found in *The Times*, which published a full account of Crawford's life and work in its issue of 30 November. But there must be exceptions to rules, and the founder of *ANTIQUITY* and its editor for thirty years must be one. We begin, then, this first non-Crawford *ANTIQUITY* with a note of the late Editor's life and work in so far as it concerns this journal; it is less an obituary than a funerary oration in that characteristic style with which Sir Mortimer Wheeler has for so many years graced (and peppered) the pages of *ANTIQUITY*. Crawford and Childe are gone, but Wheeler himself, Sir Cyril Fox and Sir Thomas Kendrick remain of that generation of giants who virtually created the new British study of man's ancient past in the twenties. Long may they be with us.

We are happy to be able to publish as a frontispiece a photograph of Crawford, taken by Mr Irwin Scollar, on the Roman Road from Southampton to the Isle of Wight as it crosses Beaulieu Heath. Mr Scollar writes of Crawford: 'He was, as you know, very shy about posing for photographs, and I obtained this one through the ruse of asking him to step into

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the photo of the road to give it scale.' The photograph was taken in July 1954, and shows the late Editor as many knew him and as all will like to remember him.

Crawford left behind him a book on the medieval roads of Abyssinia which the Hakluyt Society is publishing, and a few reviews which are published in this issue. He left nothing of the book he was going to write on cats, a foretaste of which he had given us in his brilliantly clever recent broadcast on *The Language of Cats*; and he left no mandate as to who was to succeed him in the very considerable and worth-while task of editing the journal he had started in 1927 at the age of forty-one. In *The Times* for 31 December, 1957, there appeared this letter from H. W. Edwards, the publisher of ANTIQUITY:

SIR,—In the obituary of Dr O. G. S. Crawford in your columns on 30 November it is recalled how he had founded ANTIQUITY as a quarterly review of archaeology in 1927, and had edited it for thirty years. In that time it achieved an international status as a vehicle for archaeological studies and interests and, as its publisher, I have received many inquiries as to its future.

While appreciating the essentially personal character of Crawford's editorship, a number of leading archaeologists have agreed that its continuance is highly desirable and Dr Glyn Daniel, of St John's College, Cambridge, has consented to become its new Editor. He will be assisted as advisory editors by Professor Gerhard Bersu, Dr G. H. S. Bushnell, Professor M. E. L. Mallowan, Professor Stuart Piggott, and Sir Mortimer Wheeler, and publication will continue without a break.

Although Crawford did not approve of new-fangled devices like telephones, typewriters and motor cars, he had kept neat records of his plans for articles and reviews in his own clear hand. It is nevertheless possible that some engagements entered into may not have been recorded, and the present Editor would be grateful if those contributors with whom he has not already been in touch, and who have outstanding articles or books for review, would write to him as soon as they can. The new address should be noted: The Editor of ANTIQUITY, St John's College, Cambridge (Telephone: Cambridge 58741). There was only one Nursling; there are many Cambridges—two in England (not counting Cambridge Town in Shoburyness), one in Scotland, one in Jamaica, one in New Zealand, one in Cape Province, and no less than fourteen (according to the *Columbia Lippincott Gazetteer*) in the United States of America. Overseas correspondents and publishers please note then, St. John's College, Cambridge, England. The Post Office authorities are very good, and we constantly get letters quixotically addressed to us at 'St John's Cottage, Oxford' with a laconic pencilled superscription 'Try Cambridge'—but let us not overtax them.

The late Editor had drafted some notes for the present number. One began as follows: 'The editing of a journal like ANTIQUITY is a pleasant task, but there are times when the Editor wishes that he did not have to cope with book reviews. There is of course no escape from this; it is necessary to keep our readers informed about the best books on archaeology that are published, and of some others.' We hope that experience proves the truth of the first few words; the pleasantness of editing ANTIQUITY must depend on the ready co-operation of its contributors in writing articles, notes and reviews, of its readers in criticizing what is written and saying what they want to read, and on everyone seeing that the Editor and the Advisory Editors (whose immediate agreement to advise and whose ready advice in the difficult change-over period the Editor and Publisher of ANTIQUITY gratefully acknowledge) are kept informed of all relevant developments in the world of archaeological learning. We commend to all the words of Charles Lamb in a letter to B. W. Procter dated 22 January, 1829: 'When my sonnet was rejected, I exclaimed, "Damn the age: I will write for Antiquity!"'

Crawford and ANTIQUITY

by SIR MORTIMER WHEELER

THE telephone bell rang in the shabby little overcrowded room which was in 1920 the office of the Keeper of Archaeology at Cardiff, and Harold Peake's voice told me that he was bringing round a man called Crawford whom he wanted me to meet. Outside, the streets were full of that strange assemblage of the learned and the less learned which uniquely constitutes the British Association. Karl Pearson, looming majestically over Section H, had just instructed it in the niceties of Race, which was a matter of precise skeletal measurement and no nonsense. Objective precision was in the air, reaction perhaps from the recent emotions of the most tragic of wars, though partly also a last resurgence of the rigid regimentation which had governed society before 1914.

To that regimentation, and all the unbending rectitude that it stood for, the young Crawford was already an outspoken and uncompromising opponent. A few months previously he had excavated two stone circles on a mountain of Merioneth and had received there the Cambrian Archaeological Association in its annual perambulation. 'My dear, do you *know*, the man actually received us *in shorts*!' The scandal was re-echoing round Wales when I first arrived there that August, and my heart had warmed to the unmentionable apostate before ever Peake first brought us together. Thereafter for thirty seven years he was one of my closest friends, and his boyish glee in calling the bluff of convention never left him and never ceased to stimulate and delight.

But let it be recorded in letters of brass that here was no mere spirit of mischief, no subliminal grievance seeking outlet. Crawford's overriding quality was a complete integrity which robbed his passion and his prejudice of all poison, even when (as on occasion) it seemed to some of us least apt. His directness, let us call it, was a facet of that vital integrity. 'My noble friend Lord Pembroke said once to me at Wilton, with a happy pleasantry and some truth, that, "Dr Johnson's sayings would not appear so extraordinary, were it not for his *bow-wow way*."' One need not press the Johnson analogy to admit to Crawford's thinking an occasional watch-dog mannerism which at least wakened us up and deterred the ill-conditioned prowler. That quality was a peculiarly personal one, perhaps most difficult of all for other minds to perpetuate convincingly in the ANTIQUITY which we are happy to know will continue.

Now in the mid-twenties of the present century the conventional centre of antiquarian studies was still dominated by the dilettante and the brass-rubber. Again let there be no misunderstanding. No one regrets more than I the vanishing graces of the dilettante; at the worst he was liable to be less fatiguing than the average professed prehistorian. But by 1925 new ideas were stirring the younger archaeologists to new objectives. The nameless Common Man, of all ages and all places, was beginning to displace kings and quarterings as a primary object of study. I need not amplify the familiar trend except to add this: that these younger archaeologists owed and acknowledged not a little of their initial inspiration to three or four giants of an older generation: above all to Pitt Rivers, Flinders Petrie, Arthur Evans and John Linton Myres. In Britain those four were in fact the real progenitors of modern archaeology, and Crawford was of the first brood.

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Possessed with the divine impatience of the pioneer, Crawford saw no adequate outlet for these new ideas in the existing media. Added to that was his own inability to work in harness. If he joined a committee or a sodality, he did so only to resign at the first opportunity. He had other, often mysterious, ways of keeping in touch with the work of other men. It was a constant wonder to me how, from his remote cottage at Nursling, he (and his cat) surveyed a wider world than we at the busy centre found it easy to do. The truth is that he, who scorned philosophy as even he scorned nothing else, was himself a practising philosopher of no mean order.

Well, these are some of the qualities which went to the founding of ANTIQUITY in 1927: a robust comprehension of the newer archaeology in its more scientific connotations on a world-wide map, an independence of mind amounting to a preference for solitary labour, an incapacity to suffer fools and follies and a burning desire to say so; and another quality. He said more than once to me: 'You know, I am a journalist. What I want is simple, clear-minded stuff that any intelligent fool can understand.' We talked in that sense as we walked across Oxford one night in 1949 after an evening in the Senior Common Room of Christ Church. There Lord Cherwell, who had just come back from America, had told us for the first time of the new radiocarbon (C^{14}) method of dating ancient organic substances—probably the first occasion upon which this tremendous discovery was mentioned in this country, at any rate to an archaeologist. I remember how Crawford's eyes lighted up as the conversation proceeded, and how under his breath he whispered to me 'It's a scoop!' And so it was. It made the next editorial in ANTIQUITY (XXIII, 112) and opened a new era. Yes, in the best sense of the word, Crawford was a journalist, with all that ingenuous capacity for proclaiming one's own or the next man's achievement that is native to the art.

Of his many qualities I need say no more here, if only because Jacquetta Hawkes surveyed them so sympathetically in her article on 'A Quarter Century of ANTIQUITY' in volume XXV of ANTIQUITY, 1951. That article is Crawford's finest epitaph, written, as an epitaph should be, during the fullness of its subject's life and work. He was our greatest archaeological publicist; he taught the world about scholarship, and scholars about one another. The author of *Microcosmographia Academica* would slyly have approved of him: 'The Principle of Sound Learning is that the noise of vulgar fame should never trouble the cloistered calm of academic existence. Hence, learning is called sound when no one has ever heard of it; and "sound scholar" is a term of praise applied to one another by learned men who have no reputation outside the University, and a rather queer one inside it.' That was written by a Cambridge man in 1908. Today, another Cambridge man takes over the honourable burden of ANTIQUITY and will promptly turn F. M. Cornford's definition inside out. No one else is so liberally qualified to do this, and those of us who were Crawford's familiars like to think how warmly he would have welcomed the succession.

Man and His Past

by the late O. G. S. CRAWFORD

Crawford's Man and His Past was published in 1921. In this, his last article, he reviews two books dealing in a general way with the past of man: The History of Man, by Carleton S. Coon (Cape, 1955, 28s.) and The Idea of History in the Ancient Near East, by various authors, edited by Robert C. Denton (Yale University Press, £2 2s.).

THESE two books differ both in content and in composition. One is an attempt 'to describe the main events of human history from the time that man appeared on the surface of the earth until the present moment, when he has the power to destroy it'. The other is 'an attempt to define such concepts of the past as may be found to be expressed or implied in the monuments or inscriptions of a given culture, as well as in its legends, songs, proverbs, liturgies, epics, and the like'. One is by a single author—an anthropologist; the other is by nine different authors. One, the longer of the two, is illustrated, has very few footnotes, costs £1 8s. and is extremely readable; the other has no illustrations, but footnotes on almost every page; which is excellent, but probably explains why Mr Cumberlege charges £2 2s. for it.

For Coon the unit of history is an historical event, whether cosmic or human; as examples of historical events in human history he gives the following: 'The critical landmarks of the evolution of man from the lower primates . . . his conquest of the forces of Nature . . . his division into races . . . his specialization in different arts and crafts . . . his advances in transport and communication . . . his participation in an increasing number of institutions, and . . . his growing knowledge of the nature of the universe of which he is part.' But we may hunt through the Yale book in vain for evidence that any people before the Greeks attempted to discover events such as these, or indeed for any consciousness that they formed the raw materials of history. The author of the section on Ancient Egypt admits as much, concluding that 'the ancient Egyptians cannot have had an "idea of history" in any sense resembling what the phrase means to thinkers of the present age or perhaps of the last 2400 years.' It seems, then, that history proper began with the Greeks, and that before then, though there were occasional fits of interest in past events and much compilation of annals, there was no sustained interest in the past for its own sake; in other words, they had no 'idea of history'. This was a European invention, and so far as it has been acquired in recent times in the Near East—and that is not very far—it has been by Western influence. Indeed, until Western scientists invented the means and used them to reconstruct the past, history in Coon's sense *could* not exist, for all the main facts were unknown. The *desire* for knowledge may or may not have been felt; but such history as was written had to be contemporary history. The desire to know is of course indispensable, but it is the first step only; and it is a long and uphill road that leads from desire to fulfilment.

The last essay is stated to be concerned with our modern 'Western' idea of history, 'looking at the ancient Near Eastern idea of history explicitly from the standpoint of our 20th-century idea of history'. But what are we to think of a discussion claiming to be 'modern' which omits all mention of the writer who has revolutionized our ideas about

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the origins of civilization in the Near East? Neither in this essay nor (so far as we can discover) elsewhere in the book is there any mention of Professor Gordon Childe's books.¹ So far from being 'modern' the whole point of view is old-fashioned—a survival of those days of ignorance when, for lack of facts, the field was occupied by philosophical and theological abstractions and speculation.

The Yale book is awkwardly arranged, both in its many title pages (without page numbers referring to the book itself) and indexes. Each of the eight sections has a separate index, while the ninth has none at all! One is forced therefore to look in no less than eight places to discover if mention is made of a given matter or person, and even then one may miss it if it is in the ninth. It is hard to conceive of a more stupid, stultifying device for increasing labour. For these defects the editor and publisher are responsible of course, not the authors, who have dealt with their subjects in a scholarly way according to their lights. After all, it is not the fault of the authors that the ancients had no 'idea of history'; and it is at any rate something to have the facts authoritatively marshalled and the inevitable conclusion so abundantly documented.

It is a relief to descend from the rarified atmosphere of this book to the breezy terrestrial viewpoint from which Coon surveys the past. History for him is concerned with the interaction between groups of men and their environment, which includes other groups, though he does not state it in those actual words. 'The events of human history which we shall review are also those which involve the expenditure of energy by the human organism' in time and space. Culture is 'the sum total of the ways in which human beings live, transmitted from generation to generation by learning'. One process is cumulative, because improvements in the ways of living are transmitted with merely negligible losses to each succeeding generation. This means that culture has by-passed organic (natural) selection; and in nature, success in the struggle is measured by numbers. The invention of agriculture was a cultural invention, leading to a great increase in population and a world-wide expansion thereof. Hunters were forced to take refuge in backwoods and arctic tundras, and are now greatly out-numbered. But, as Coon reminds us, 'our biological make-up is the same as theirs, and our biological needs were determined by natural selection over hundreds of thousands of years'. In the rest of nature a limit is set to numerical increase by the extent of the available food supply, and by predators, which may belong to the same species. We cannot escape these limitations and shall soon have to face a universal food-shortage. Natural history suggests that it will involve a struggle, and since we have by-passed natural selection success will come, not to the wealthiest group, but to that nation or confederacy which is stronger in a military sense; and today that means the one which is the most highly organized industrially. It is not a pleasant prospect, the more so because it may even lead to extinction; but that is a possibility we must reckon with. Coon tries to be optimistic, but at times he, too, has his doubts. 'To a cosmic geographer', he says, 'with only an objective interest in man, our species might appear to be nothing but a highly organized skin-cancer destroying the surface of the earth with growing rapidity.' Someone before him had already said that life was a disease to which elderly plants are subject. But microbes and bacilli do not regard disease as a bad thing; it all depends on the point of view. Perhaps our finest hours were spent during the last interglacial period.

Coon has written a most stimulating and readable book, and we heartily commend it to our readers. We have made no attempt to summarize its contents here, partly because they are too varied, partly because so much of the book's interest is in the author's asides

¹ In this context the two most important are: *What Happened in History*, first published as a Pelican book in 1942; and *History*, published by the Cobbett Press in 1947.

MAN AND HIS PAST

and *obiter dicta*. It will not please everybody, which merely means that it is full of new ideas.

There are a few things that need attention in preparing the next edition. The book seems already to have been published in America ; why does the publisher not say so ? Nowadays things move so quickly in archaeology that the date of first publication is important, if only in the author's own interest. As an illustration of the Homeric chariot it would be better to use a geometric representation, or that on the Mycenaean stela which is contemporary, rather than one on a much later Greek vase (p. 251) ; and the same remarks go for the ship. For 'Coughlan' read 'Coghlan' (p. 265 and elsewhere). The Roman road illustrated on p. 274 is an exceptional, not a typical, example. Roman roads were perfectly 'practical' in France and Britain where heavy frosts occur, and Roman villas were artificially heated (p. 288). Abydos was not on the ancient Sudan frontier, which was much further south. The statement (on p. 359) that 'the first half of the 3rd millennium B.C. was a period of calm seas and optimum sailing weather' along the North Atlantic sea-board may well be true, but was it not also true of the millennia that went before ? The Homeric Greeks were not illiterate ; the heralds who took messages from one kingdom to another are mentioned on the recently deciphered Mycenaean clay tablets, and may even have been the scribes who wrote them (see Professor T. B. L. Webster in *ANTIQUITY* XXIX, 14). It was not in 1919 but 1917 that radio 'was first used for ground-to-plane communication in air-planes' (p. 388), *teste me ipso*.

Recent Discoveries of Upper Palaeolithic Art in Moravia

by BOHUSLAV KLÍMA

In this article Dr Bohuslav Klíma of the Archaeological Institute of the Czechoslovak Academy of Sciences, Brno discusses some recent discoveries of baked clay statuettes of Upper Palaeolithic date made in Moravia. His article is illustrated with drawings made by the author and photographs taken by J. Škvařil. (Plates I, II and III.)

EXAMPLES of palaeolithic art are sufficiently rare for fresh discoveries to arouse considerable interest. This is so not only in western Europe, with its magnificent cave paintings, but also in eastern and central Europe, where the Moravian sites in particular have already yielded many remarkable statuettes and engravings. Among them are, indeed, some of the foremost of their kind.¹

A quarter of a century has passed since Karel Absolon first brought to the notice of international archaeological circles the results of his memorable excavations of the more important palaeolithic sites in Moravia. Unique among his discoveries were baked clay figures of animals from a mammoth hunters' encampment on the Pavlov Hills near Dolní Věstonice. At the time various writers hesitated to admit their authenticity, but as work at Dolní Věstonice continued to add new specimens their doubts disappeared. In 1933 and 1934 Absolon excavated an area where these objects were concentrated to such an extent that he believed it to have been the 'focal point of the hunters' ritual'. Only a few species were absent from an otherwise complete gallery of the fauna of the period while some, for example, bear and mammoth, were represented several times.

Modern excavations have not lagged behind pre-war work in the variety of objects which they have yielded, although they were undertaken for other purposes. At Dolní Věstonice especially the aim was to lay bare the structure of the site as a whole, and thus to make possible a more clear-cut conception of the social and economic life of the ancient community. Two contributions towards the solution of this problem were made at Dolní Věstonice: the discovery in 1949 of a ritual burial, and the discovery, adjacent to a great mammoth-bone midden, of two huts. In the course of the excavations many fragments of animal figurines were brought to light, and even a kind of kiln where they had been baked. They constitute the earliest known evidence of a ceramic industry.²

These results are now perhaps being surpassed, both in variety and significance, by the systematic excavation of a new site near the village of Pavlov. This is revealing a somewhat more recent hunters' encampment, dating from the end of the last Ice Age, hitherto quite untouched, and with numerous perfectly preserved relics. Their age has been determined by the radioactive carbon method applied to samples of ash from the hearths. The results, which are highly consistent, give an age of $24,800 \pm 800$ years. This corroborates the age assigned originally (PLATE I).

¹ K. Absolon, *Illustrated London News*, Nos. 4516 and 4518 (1926), 4726-4730 (1929), 4775 (1930), 5057 and 5058 (1936), and 5137 (1937).

² B. Klíma, 'Palaeolithic Huts at Dolní Věstonice, Czechoslovakia', *ANTIQUITY*, xxviii, pp. 4-14, March 1954.

RECENT DISCOVERIES OF UPPER PALAEOLITHIC ART

The new work at Pavlov harmonizes remarkably with the observations made by Absolon, in advance of his time, at Dolní Věstonice; and the collections of objects made then and now, complementing one another, form a single whole. It is good to know that Karel Absolon, now in his 81st year (born 16 June, 1877), is witnessing the fruitful development of his far-sighted pioneer work with undiminished intellectual and creative vigour.

Most numerous among the objects of artistic interest from the Pavlov sites are shapes and statuettes of baked clay. They are found throughout the occupational stratum, but



FIG. 1. Pavlov (district of Mikulov, Czechoslovakia). Legs of broken animal statuettes, clay lump showing tool marks, deformed animal figure, and the hind quarters of a baked clay figure (actual size).

most frequently in the layers of ash surrounding the hearths, and sometimes in the hearths themselves. They are small or very small, and vary in colour from a light ochre to a dark ashy brown. Traces of kneading and modelling can often be discerned, and imprints of fingers, palms, and finger-nails appear occasionally. Some have been deformed, others crumbled, broken, or cracked by heat. Both complete figures and fragments indicate that in general they were shaped while still plastic, but there are also signs of cutting, scraping, and similar working after hardening. Wooden or bone implements appear to have been used (PLATE III).

The animal figures were usually so shattered that complete reconstruction was impossible, but the legs, remaining easily distinguishable, prove that many more figures were made than have been preserved. Pavlov has yielded an extensive series of these legs, some of which are shown in FIG. 1. The first is very small indeed; the second has a fairly deep hole in the region of the ankle. This was made while the clay was still soft so that the pressure of the tool raised a ridge round the opening. The first object in the lower

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row shows one of the methods of shaping a larger piece of clay, using a broad, blunt implement to make deep grooves or cuts. The object in the centre of the lower row is a complete animal figure which was thrown or pressed against a hard uneven surface while still soft. Although the general shape and proportions have been preserved the figure is too deformed to allow the animal to be identified with certainty. A figure deformed similarly was also excavated in the early work at Dolní Věstonice. The last illustration shows the hindquarters and legs of another animal figure.

Several remarkable objects were found in a better state of preservation, among them two rhinoceros heads (FIG. 2). Apart from an earlier find at Dolní Věstonice they are the only three-dimensional representations of this typical associate of the mammoth known to us, though drawings and engravings are relatively frequent. All three heads are



FIG. 2. Pavlov. Baked clay animal figures: two rhinoceros heads, mammoth, ibex, bear (actual size).

RECENT DISCOVERIES OF UPPER PALAEOLITHIC ART

modelled in the same style, and emphasize the cylindrical shape of the head, the characteristically raised join of head and neck, and the eyes and nostrils set deep on either side of the face. The specimen excavated at Dolní Věstonice in 1934 has had its front horn, originally broken off, replaced; of the Pavlov heads, that found in 1956 has clear remains of both horns, while the 1953 example (in the centre of the middle row) never had them, and is less carefully modelled. The neck is simply a flattened stump which the artist held in his fingers while he worked. The 1956 head (top row) is superior to either of the others both in general form and in detail. Its broken neck shows that it belonged to a larger figure of fine workmanship. The traits of the living model are faithfully caught, and there is no apparent attempt at stylization or abstraction. The artist's outlook was thus realistic despite the technical difficulties of working on so small a scale, which might have invited concentration on the principal lines to the exclusion of all detail. The expression is fresh and lively, thanks, in part, to the deeply impressed eye-holes which are surrounded by the ring of clay displaced when they were formed. The widely expanded nostrils also contribute to the almost gay expression, but its chief source is the heavily marked oblique line of the mouth. The right ear is preserved and adds to this effect, while the smooth surface of the figure enhances the total impression of delicacy. In neither example is the animal's coat of hair indicated by scratches, as in most drawings and carvings in mammoth ivory. Instead, a ridge, or collar, where the lower jaw meets the neck, marks the most prominent hairy region, so that fundamentally linear elements are represented three-dimensionally. This is additional evidence of the thorough mastery of sculptural technique and thought.

Of particular value is the small head of an ibex (middle row, right) as it is the first figure of this animal to be discovered by us. The great horns are represented by heavy ridges on either side of the head but no detail is modelled. The neck is damaged. The miniature mammoth (middle row, left) matches two such small figures from Dolní Věstonice. One of these, found by H. Freising in 1923, was the first baked clay figure to be discovered on our palaeolithic sites; the second was excavated by K. Absolon. The present figure is smaller than either of these but, despite this, it shows very clearly the typical curves of the back and head, with the sharp cleft separating it from the body.

In the bottom row are shown the flattened head of a bear and a bear's trunk lacking head and limbs. Both objects bear magic signs symbolizing stab wounds: the head over the left eye, and the trunk on the right side of the chest. It is very suggestive that these signs are placed precisely where a wound would be of great effect. We believe them to have been implanted (while the figure was still plastic) to the accompaniment of magic rites by an implement symbolizing the hunter's weapon. A similar significance attaches probably to the mark on the ankle in FIG. 1.

The purpose of the animal figures discovered on our sites is thus revealed by the deep scars and markings borne by them: together with magic rites and practices they were to help and strengthen the hunter in his struggle against a harsh environment full of mysterious forces and dangers. The need for success in the hunt, by which alone man could secure his food and other daily necessities, was the leading motive in their creation.

A second somewhat bigger figure of a mammoth is also of interest (FIGS. 3, 4 and PLATE II). Together with the well known female statuette (the Věstonice Venus, 1925), and the complete one of a bear, it belongs to the class of large baked clay objects. It was discovered cracked by heat into several pieces in the hearth of the ninth hut at Pavlov in 1954. Only some eighteen inches away lay a mammoth ivory relief also depicting a mammoth. Wherever preserved, the original surface of the statuette shows skilled and careful workmanship. The figure, a highly successful attempt at realism, gives its impression of



FIG. 3. Pavlov. Incomplete statuette of mammoth (actual size).

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life by accuracy both of the general outline and of the proportions of the component parts. It is therefore a valuable addition to the series of representations from which the appearance of this giant of the late Ice Age may be deduced. Our drawings (FIG. 3) show the statuette from various angles, and an attempt at reconstruction (FIG. 4).

The characteristic lines of the back and head are again strikingly brought out. The left eye only is preserved and is delicately and effectively indicated. The head and face are remarkable for their articulation, particularly in the correct relief of the left lower

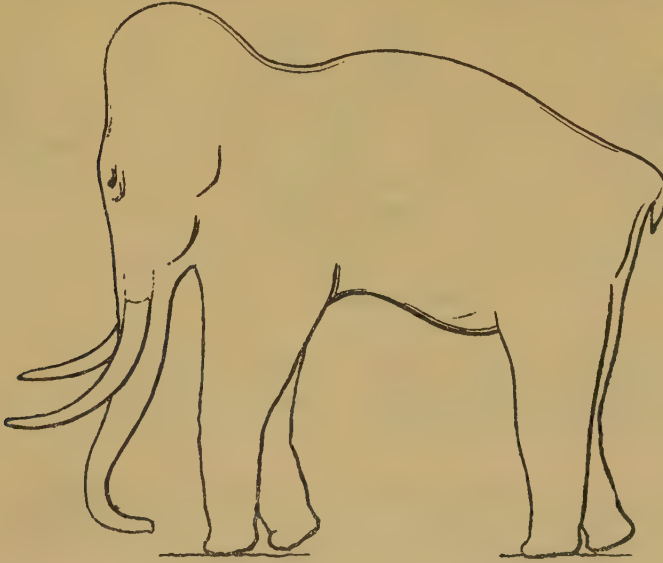


FIG. 4. Reconstruction based on Fig. 3.

jaw, and in the broadening of the upper jaw at the insertion of the tusks. Equally successfully modelled are the neck and the slender cylindrical body, which swells out naturally at the belly. All the limbs are broken off, but the stump of the left hind leg enables the original height of the figure to be estimated. A small stone set at the root of the tail adds an amusing touch. Hair is indicated neither by scratches nor three-dimensionally, and this lack is particularly felt on the underside of the body, where its usual great length contributed much to the silhouette so well known to us from various prehistoric drawings. The broad rounded body depicted in them would, however, when shorn of its thick and long hair, approximate closely to the appearance of our statuette with its slender body set on long legs. No doubt it represents a young beast whose hair is still short; but not a mere calf, the ridge of whose back would be less developed.

Among the pieces of baked clay recovered were fragments depicting man, and parts of the human body (FIG. 5). A curious mushroom-shaped form with broken 'stalk' is perhaps best identified as a phallus, while another appears to represent a breast with a prominent teat. Although both are mere fragments their shapes are sufficiently distinctive to make other identifications unlikely. The only complete human figure of baked clay to be discovered at Pavlov so far is less puzzling. Like the other palaeolithic statuettes of human beings it is excessively static, dead, and unrelated to its surroundings. It represents a

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standing person, but shows the legs only sketchily and the arms not at all. In fact, it can only be analysed by recognizing the round head, clearly separated from the flattened trunk. All remaining detail is suppressed, including the sexual characteristics commonly emphasized in these figures, so that it is impossible to decide whether the subject is male or female. Its size justifies the inclusion of this figure in a special group of miniatures, to include also the small mammoth, the detached leg, and various others.

It was said in the introduction that the discoveries of artistic objects are among the exciting exceptional events of archaeological research: yet we have been fortunate enough



FIG. 5. Pavlov. Human figures of baked clay: phallus, miniature figure, fragment of breast (actual size).

to enjoy them repeatedly during the last few years. The work at Pavlov has enabled us to enrich Moravian collections of prehistoric art substantially, not only with ceramics but also with mammoth ivory reliefs, with many ornaments and tools, and with other decorated household articles.

Our baked clay figures occupy a special place amongst these discoveries. Despite their small size and toylike air they succeed perfectly in capturing the characteristic lines of their subjects, so that in creating these accurate three-dimensional representations the Stone Age hunters provided ample evidence of their admirable power of observation, of their visual memory, and of their artistic aims and skill. The Pavlov discoveries, of which we have here given the latest examples, testify to the highly developed artistic achievement of these ancient inhabitants of southern Moravia.

Bronze Swords in South Germany

by W. A. von BRUNN

The 36th Report of the Römisch-Germanische Kommission for 1955 (Berlin, 1956, Walter de Gruyter and Co., pp. 52-155 with 22 plates) contains an article by J. D. Cowen called 'An Introduction to the History of the Bronze Flange-Hilted Sword in South Germany and the Adjacent Territories'. In this review-article Dr W. A. von Brunn of Berlin discusses Cowen's paper.

THE author of this work modestly describes it as an Introduction; but it is more than that. It is no less than a detailed survey and description, accompanied by a complete catalogue of the flange-hilted swords of the area under review. This area comprises Bohemia, Austria, South Germany and Switzerland, besides all the territory extending thence north and west to the European coastline from about the Elbe to the Loire. The work is thus complementary to the monographs by Sprockhoff and Holste covering those Central European swords which have hilts formed entirely of bronze. In that respect, therefore, it fills an awkward gap; while in another direction it supplements in particular the work of Sprockhoff in the North, in that it disposes of a fresh body of material, discusses identical (or similar) problems from an independent point of view, and in part corrects conclusions hitherto generally accepted. Finally it presents an important and very solid contribution to the chronology and cultural history of the Bronze Age of western Central Europe.

In the course of his studies the author has moved outwards from an examination of the chronology of the flange-hilted sword in the British Isles. And that, naturally, directed his attention to the adjacent regions of the continental mainland. In this process it was essential for him to come to terms with Sprockhoff's work on the flange-hilted swords of Northern fashion from the Baltic area. Two important essays in fact indicate the rigorous nature of the author's preliminary studies.

In the first (*PPS* 17, 1951, 135 ff.) he was able to show that an equation between the sub-divisions of the late Bronze Age in south-eastern England and in the Nordic area could be achieved with the help of the flange-hilted swords by way of the Urnfield area (south Germany and adjacent territory); and that these swords first occur in Britain much later than in the Baltic region. From that point, inevitably, he was drawn on to the question of origins. In the second preliminary study (*PPS* 18, 1952, 129 ff.) Cowen conclusively demonstrated that a Danubian origin must be presumed for even more forms in the North than Sprockhoff supposed in 1931. For the equation between the chronologies of Montelius and of Reinecke Cowen favoured Sprockhoff's latest deployment (Reineckefestschrift, 1950), and added to it something of his own by his observations on the partial overlap between Montelius V and Hallstatt C. His most important result, however, was the recognition that a number of the swords found in the North, which Sprockhoff had recognized as foreign and assigned to a single type—'the Central European flange-hilted sword'—do not in fact constitute a homogeneous group. On the contrary the pieces in question are quite miscellaneous in their variety.

Now, in this new and far-reaching survey, the Central European types are presented in detail, and some surprising results emerge. In the first place it appears that by the application of stricter standards of analysis clearly defined types of the flange-hilted sword *can* be differentiated, in Central Europe as elsewhere; that here, indeed, we have

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even more types than Sprockhoff found in the North. Of some 240 swords admittedly only 18 come from reliable closed finds. Nevertheless, the types can for the most part be clearly distinguished, and convincingly arranged in chronological sequence. In the methodological aspect all this constitutes the best of evidence that typological analysis still remains one of the most important techniques at the disposal of the prehistorian. At the same time it affords striking testimony to the diligence with which the author has assembled his material. Naturally enough, the neighbouring territories and their most important finds have been included in his survey, and the work already done on the material in the North in particular has served him in good stead. But the field as a whole, as he rightly says, stood untilled. For the most important of the chronological premises Sprockhoff's latest promulgation (*Reineckefestschrift*, 1950) is again adopted as a basis.

The earliest sword-forms of south Germany are identical with those found in the North (Sprockhoff's types 1a and 1b). The south and west German pieces constitute, however, a group quite separate from those of the North. From that the author rightly infers an origin for these types in the south-east, and a homeland somewhere in the central Danubian region. Very few closed finds are available from the area under review; but these readily support an attribution to Reinecke's Bronze Age C. On the relation between types 1a and 1b the pieces from our area yield no information.

Like these earliest types the next type too ('Nenzingen') still has a straight blade. It belongs to the end of the Tumulus Bronze Age and the beginning of the Urnfield Period—Reinecke's Bronze D and Hallstatt A (probably only the first half). It corresponds to the 'Common flange-hilted sword of normal type' of the North (Montelius III). The type is important on account of its great numerical abundance, and wide distribution. The author observes that hitherto it has been possible to recognize no regional variations, and that the type ought therefore to provide 'a chronological indicator of the first importance'.

The origins of the type are admittedly unknown, and the uneven distribution makes investigation no easier. Bearing in mind the earlier native types the author decides in favour of a European (that is, a Central European) origin. His view is supported by the pattern projected by the various groups noted in the East Alpine province; in South Germany and Switzerland; in Bohemia, Central Germany and North Germany; and finally on the middle Rhine. To the east the Bavarian pieces date from Bronze D; the south-west German not before Hallstatt A. Whether, however, as the author supposes, the spatial movement of the type here admits of demonstration in chronological terms may best be left undecided. Certain, at all events, is the placing of the Krautergersheim variant, which must rank alongside the solid-hilted swords from Spandau and from Wangen near Cannstatt. To the position of the Spandau hoard we shall be returning later.

During the course of Hallstatt A the most important innovation is the introduction of the leaf-shaped blade. Along with that appear a whole series of new types. But these, unlike the earlier pieces, are now not infrequently found in eastern France, and they even make a first appearance in south-east England. The long slender 'Erbenheim' type (with a pommel tang), and its variant form, the Austro-Hungarian 'Ennsdorf variant', must be of eastern origin. The clumsier 'Hemigkofen' type derives directly from the Nenzingen type. Whether the rapid spread of these types is to be connected with the spreading of some definite folk-element, as the author seems inclined to think, can only be described as doubtful. The author supposes that the Hemigkofen type derived from the Nenzingen type under strong influence from the Erbenheim type, and that a further form, the Letten type, is to be explained in the same way. The latter stands half-way between Erbenheim and Hemigkofen, since it is both short and thickset, like Hemigkofen, and at the same time has a pommel tang, like Erbenheim; but the type cannot be dated by

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closed finds. For all these types a date in Hallstatt A is, however, either demonstrable or highly probable. Above all the closed grave-finds of the Hemigkofen type are here absolutely characteristic and consistent; and one cannot but agree with the author that in the first half of Hallstatt A the four types (Nenzingen, Erbenheim, Letten and Hemigkofen) were simultaneously in use.

Precisely contrary, however, appears to be the evidence of two closed finds from the north-eastern periphery of the area, which have presented difficulties to the author. The grave find from Latdorf (pp. 80 ff.) had been assigned by Sprockhoff to Period V; and that involved the Hemigkofen sword it contains in a late dating (Hallstatt B). But today Sprockhoff's old attribution is in fact no longer valid. At the time when he was writing his work on the flange-hilted swords he believed in a short and unimportant duration of Period IV, and in the equation Montelius V = Hallstatt A. In the meantime this view has been corrected. The Latdorf find contained no northern bronzes, and it can without qualification be assigned to Period IV, or in south German terminology to Hallstatt A. Like the other graves it supports the dating deduced by Cowen for the Hemigkofen type, and links it to the pottery of the Lausitz culture.

More difficult are the problems raised by the sword with a pommel tang from the Spandau find. Cowen (p. 79; and previously in *PPS* 17, 1951, 207 ff.) supposes that swords with a pommel tang, like those from Stätzling, Spandau, Nerike and Goplosee, are native copies of imported examples of the Erbenheim type, and that their early appearance (end of Period III) can be used as evidence for the early arrival of the Erbenheim swords. Against this view, however, must be set the straight blades of the Stätzling and Spandau swords. The most important innovation in fighting technique implied by the Erbenheim type consists in the leaf-shaped formation of the blade. And it is precisely the sudden appearance of this feature at the beginning of Hallstatt A that shows how rapidly a new method of handling the sword in battle was adopted. Of all this there is nothing as yet to be observed at Spandau. Furthermore, the northern bronzes at Spandau point not to the end of Period III, but, in fact, to Period II. In Central Europe the find corresponds to Reinecke's Bronze D. It belongs to the period of overlap between Montelius II and Reinecke D. That means it is too early for us to admit the Erbenheim type as a model. I should therefore like to suggest that the swords from Stätzling and Spandau are rather to be connected with that from St Margaret's Isle, at Budapest—that is with the predecessor of the Erbenheim type. It must in that case be supposed that this predecessor, too, strayed from the Danube area at an early stage (cf. Grave B at Mouliaua in Crete). That it should in fact have reached the North very early would be consistent with the early position of the older northern swords.

During the course of Hallstatt A, that is at a later stage than the Erbenheim type, there began to appear in south and west Germany a number of sword-forms which in some respects differ materially one from another. Often their distribution covers only a restricted area. The idea, therefore, of local production readily suggests itself. To these later types belong those here designated 'the early ornamented group', the Mainz type, the Locras type, and the Forel type. The two latter are, broadly speaking, limited to the area west of the Rhine, the Forel type indeed to western Switzerland and eastern France. The dating of all these types is now evidenced by only a few closed finds, since in these later periods the richer grave-groups scarcely any longer occur. The few available hoards, however, confirm what the typology and ornamentation of these swords seem to show.

Exclusively to Hallstatt B belong the Long Swords with their richly ornamented ricassi. Although these too are ill furnished with closed finds their chronological position is clearly determined by such finds as there are; by their rich ornamentation; by the

occasional presence of antennae pommels; and by other resemblances in the form of their hilts to solid-hilted swords of the same period. In explanation of their great length the author hints that they may possibly have had to compete in the field against swords of iron. To me, however, 'the substantial coexistence of Ha.B and Ha.C' undeniably involved in such a proposition seems on the evidence unjustified. For a historical construction of that kind would crush the chronological basis on which it was built. The early finds of iron quoted here are inadmissible as evidence in the context. The author himself, it must be said, discusses these questions only under the greatest reserve. With his derivation of the Long Swords from the contemporary types current in Ha.B there will be complete agreement. The types of Long Sword are defined as Kleinauheim (the most numerous), Briest (in the north-east), Mâcon (in the south-west), Port/Nidau (south-west). The rarer types can to some extent be fairly closely localized; possibly even, in the case of Port/Nidau, traced to the very workshop.

In his summary the author in brief and pithy terms recapitulates his view of the course of events. There follows a catalogue, rigorously classified to accord with the sequence of types propounded in the text, and so designed as to facilitate independent verification of the material. Finally there are three appendices in which are extracted lists of the leading association-groups, of western swords in south Germany and Switzerland (not dealt with in the text, but supplementing *PPS* 18, 1952, 144 ff.), and of bronze Hallstatt swords of the larger form, designated by the author the 'Mindelheim' type.

To sum up, it must be said that the author has brought off an outstanding performance, and has rendered a remarkable service to the cause of prehistoric research. His typology of the flange-hilted swords in the south-west is clearly defined. The demonstration that this typology is supported, and is chronologically fixed, by such closed finds as are available must be rated as certain. North of the Alpine-Carpathian ring there is now at our disposal a complete new type-series, which (like the south German grave-finds and, further afield, the Nordic material, with their respective chronologies) can be employed to help clarify the material in the south-east.

Everyone, certainly, must agree with the author that in that direction the task will not be easy. For example, in many of the Hungarian founders' hoards the distinction between the Nenzingen and Hemigkofen types will be hard to draw, since in them so often only the hilts, and not the blades, of the swords have been preserved. Even in Central Europe it is sometimes only with difficulty possible to distinguish the types. In this regard the sword from Sachsenburg, which falls between the 'early ornamented' swords (p. 90) and the Mainz type (p. 97), comes to mind. Certain swords do not admit of an attribution to any of the types propounded; such is the sword from Sutz-Lattrigen (p. 92), though here to be sure it is increasingly clear that the closest parallels are to be found directly in the south-east. One day, possibly, a fresh typology will pay still closer attention to the length of the swords. For it is observable that there are types which noticeably differ from each other mainly in point of length (Erbenheim-Letten; Kleinauheim-Mainz). Others again stand in some special relation to certain types of the contemporary solid-hilted swords.

The author's stimulating suggestions must certainly be followed up; and his introduction into our German terminology of the word 'ricasso' is to be welcomed. The impartial and objective manner in which he has approached the problems of Central European research, can here be welcomed only with gratitude. Contributions by Northern archaeologists to the detailed study of the Bronze Age material of Central Europe have come hitherto chiefly from Sweden. It is indeed good to find English scholarship also now joining in with such stimulating work.

Vortigern

by C. A. RALEGH RADFORD

VORTIGERN has had a bad press. This has tended to obscure the part which he played in the history of 5th-century Britain, so that a reassessment is now overdue. The late Professor H. M. Chadwick¹ has indicated the way in an essay published posthumously. The present article owes much to his study, though the writer feels compelled to modify some of the conclusions and to amplify the evidence.

THE NAME. The name, which has been anglicized as Vortigern, appears in the oldest Welsh records as Guorthigern and later as Gwrtheyrn. Bede, writing in Latin, uses the forms Vertigernus and Urtigernus; in the Anglo-Saxon translation these are rendered as Wyrtegeorn. Chadwick explains the name as meaning high lord or overlord.²

THE SOURCES. Vortigern is not named in the best texts of Gildas, who compiled an account of Roman Britain in the middle of the 6th century.³ But the proud tyrant mentioned in Chapter 23 of this work is almost certainly a mask for Vortigern; a circumlocution of this type would be in keeping with the allusive style of the author.

Bede, writing in Northumbria at the beginning of the 8th century, knew Vortigern as the British leader, who had authorized the first settlement of the Saxon invaders in eastern Britain, and identified him with the proud tyrant of Gildas.⁴

Nennius, a Welsh writer of c. 800, disposed of a mass of material about Vortigern. While some of his statements appear to be based on a genuine historical tradition, the greater part of this portion of his work is folk tale and legend. Much of the material is drawn from an older life of St Germanus or Garmon, whose cult is centred in Powys. He also records that Vortigern was the ancestor of the dynasty, which ruled southern Powys in his own day.⁵

Vortigern figures in the long inscription on the Pillar of Eliseg, erected in northern Powys in the middle of the 9th century. This is cut on a mutilated cross-shaft and is now largely illegible. It was already damaged when Lhuyd made his transcript in the late 17th century. The monument was erected by Cyngen, King of Powys (i.e. northern Powys with its centre in Ial), who died at Rome in 854. He was the last of his line and the context makes it clear that this dynasty then claimed descent from Vortigern.⁶ The inscription is certainly based on the traditions of the royal house of Powys and is a first hand record of those traditions.

The only other important sources are the genealogies, which are treated separately (p. 21). With Geoffrey of Monmouth and other later writers we enter a realm of fable and

¹ *Studies in Early British History* (ed. N. K. Chadwick), 21-46.

² *Ibid.*, 26-7.

³ *Gildas, de excidio Britanniae in Monumenta Historiae Germaniae: Auctores antiquissimi* (= MHG : AA, xiii, 25-85). English translation by H. Williams in *Cymmrodorion Record*, Series III. The name Vortigern is found in some MSS. of Gildas (MHG : AA, xiii, 38); Williams (*loc. cit.*, 52, n. 1) argues that this is due to corruption from Bede or Nennius. This is not conclusive. The appearance of the name in Bede, in a passage which shows acquaintance with Gildas, rather suggests that the name Vortigern figured in the original text of the Welsh writer.

⁴ *Beda's historia ecclesiastica*, i, 14.

⁵ *Historia Brittonum*, cap. 31-49 (MHG : AA, xiii, 170-93).

⁶ V. E. Nash Williams, *Early Christian Monuments of Wales*, no. 182; Arch. Camb., 1935, 331; Ministry of Works, *Official Guide*.

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legend. Much of this material doubtless incorporates historical fact, but a full analysis would extend beyond the limits of this article and could not be confined to a discussion of Vortigern.

THE DATE OF VORTIGERN. Two discrepant sources suggest close dates for Vortigern's rule. The Welsh tradition is given in the calculi placed before the oldest copy of the *Annales Cambriae*, contained in MS. Harley 3859.⁷ The MS. dates from c. 1100, but the contents and other details show that much of the early material, including in all probability the calculi, is copied from an original compiled in the middle of the 10th century at the Court of Owain ap Hywel Dda of Dyfed. The pertinent passage can be translated: 'from the consulate of Stilicho (400) to Valentinian, son of Placidus and the kingdom of Vortigern (are) 28 years. . . . But Vortigern held rule in Britain in the consulate of Theodosius and Valentinian (425) and in the fourth year of his reign the Saxons came to Britain, Felix and Taurus being consuls, in the 400th year from the Incarnation [*sic*] of Our Lord Jesus Christ (428).' (For convenience the dates *Anno Domini* have been inserted here in the text.) The last statement is an obvious slip for the 400th year from the *Passion* of Our Lord, the initial year of the Paschal tables, which assign this event to A.D. 28.⁸

The Saxon tradition is recorded by Bede, who states that: 'in 449th year of the Incarnation, Marcian with Valentinian, 46th in line from Augustus, obtained the Empire and held it 7 years. In that time the people of the Angles or Saxons, on the invitation of the aforesaid king (sc. Vortigern), reached Britain, and, on the orders of the same king, received . . . a place for settlement.'⁹ The passage is partly based on Gildas, but the chronological data are drawn from some other source and have no connection with that writer.

In estimating the relative value of these two sources we must not attach undue weight to the late date of the Welsh annals in the form in which they have come down to us. The text of c. 1100 (text A of the *Annales Cambriae* taken from Harley 3859)¹⁰ is based on a calendar of 533 [*sic*] numbered years and clearly goes back to a great cycle based on the Paschal tables. We know from Abbot Ceolfrid's letter to the King of the Picts that such tables were being constructed in Britain in the early 8th century.¹¹ Each church inserted important events in the margin of its own table and the earliest Celtic annals were compiled by combining the entries from a number of such marginalia. The early part of the *Annales Cambriae* includes events concerning Mercia and the North. Though these need not imply sources outside the British area of the 7th century, the possibility of entries drawn from churches in the area conquered by the Saxons cannot be excluded. The calculi, which precede the annals, have no close connection with them, but the fact that they are based on consular datings suggests that they are drawn from an early written source, possibly from entries on the margin of the Paschal table of some British church.

It is not possible to argue in favour of a similar contemporary basis for Bede's record. This probably goes back to a list of Saxon rulers with their regnal years. The *Moore Memoranda on Northumbria* provides an example and the *regnare coepit* of these notes is illuminating.¹² A generation may have elapsed between the first settlement and the organization of the invaders' kingdom. Tradition could easily have confounded the two events and led to a wrong synchronization. In the circumstances it is submitted that the Welsh

⁷ *Y Cymmrodor*, ix, 152.

⁸ E.g. MHG : AA, ix, 586-735.

⁹ *Beda's historia ecclesiastica*, i, 15.

¹⁰ *Y Cymmrodor*, ix, 152-69.

¹¹ *Beda's historia ecclesiastica*, v, 21 and the note in Plummer's Edition, ii, 334.

¹² *The Cultures of Northwest Europe* (H. M. Chadwick Memorial Essays), 245-57.

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tradition deserves the greater credence, in spite of the late date of the surviving record.

THE GENEALOGIES. This conclusion is greatly strengthened when the evidence of the Welsh genealogies is considered. For our present purpose three sources will suffice. The line of southern Powys was recorded by Nennius in *c.* 800.¹³ The same descent is also recorded in Jesus College, Oxford, MS. 20, a compilation of the 14th century with modernized spelling. The same source also gives the descent of the rulers of northern Powys.¹⁴ Both these sources trace the ruling lines back to Vortigern. The descent of northern Powys also appears in Harleian MS. 3859 among the genealogies following the oldest MS. of the *Annales Cambriae*, to which they are closely related; like the annals, the immediate source is a document of the mid-10th century connected with the court of Owain ap Hywel Dda.¹⁵ In the last named document the founder of the line is given as Cadell; Vortigern finds no place. Against this we must set the older and better authority, the Pillar of Eliseg (p. 23), which acknowledges some connection between the princely house of northern Powys and Vortigern. It is therefore probable that the omission in Harley 3859 is deliberate and that the correct tradition is that recorded in the older sources and repeated in Jesus 20.

These genealogies are set out in tabular form in the appendix, where the discrepancies are discussed. The dates given in the central column are calculated on the basis of thirty years to a generation. The figure given represents the floruit of a particular ruler, during which a part at least of his reign might be expected to fall. The generation 390-420 ascribed to Vortigern accords fairly closely with the traditional Welsh chronology, but cannot easily be reconciled with that of Bede.

THE TRADITIONAL PICTURE OF VORTIGERN. Vortigern, as pictured in the earliest sources, does not conform to the heroic pattern of Celtic leadership. He is not a warrior. Negotiations with the enemy, cessions of territory, and the erection of strong places are not the normal acts recorded of a military leader.¹⁶ In one passage, in Nennius, we hear of the death of his son, Vortimer, fighting against the Saxons in Kent.

At the same time Vortigern exercises a wide sway. He is able to authorize settlement of the Saxons in Kent. He is also ruler of a territory in Wales, connected in some especial way with the district of Gwrtheyrnion on the Wye, in modern Radnorshire.

As Chadwick has summed up the position, his whole career suggests a Roman civil governor. He is probably the last Roman provincial governor in Britain. That he was at the same time connected with central Wales need cause no surprise. A powerful landholder from one of the British *civitates* would have been a suitable choice for the post of provincial governor in 5th-century Britain. Nor must his connection with Gwrtheyrnion be given too restricted an interpretation. He must have been one of the leaders in his own *civitas*—as we shall see, that of the Cornovii—and his power was probably based on the possession of great estates in the southern part of the tribal territory, the later Gwrtheyrnion.

THE CAREER OF VORTIGERN. We are now in a position to reconstruct, tentatively and in outline, the career of Vortigern. He would have been born into the powerful native landholding class, probably in the third quarter of the 4th century. His patron may have been Magnus Maximus, for—we have it on the authority of the Pillar of Eliseg (p. 23)—he married Severa, the daughter of Maximus. A career in the Imperial service, begun under

¹³ *Historia Brittonum*, cap. 49 (MHG : AA, xiii, 193).

¹⁴ *Y Cymmrodor*, viii, 83-92, pedigrees xiv and xviii; for date, *ibid.*, ix, 142, n. 1.

¹⁵ *Ibid.*, ix, 169-83, pedigree xxvii.

¹⁶ This is well brought out by Chadwick, *loc. cit.*, 28; *Historia Brittonum*, cap. 42 (MHG : AA, xiii, 186).

these auspices, would explain his qualification as tyrant. Maximus, executed by the Emperor Theodosius in 383, was a tyrant, a usurper, who seized power in Britain. Welsh tradition connects Maximus with Segontium (Caernarvon) and, as Mr Stevens has pointed out, this tradition is supported by the *Notitia Dignitatum*, the army list of the late Roman Empire. This document records in Illyria a detachment named Seguntienses, from Segontium, in which Stevens would see the personal guard of the defeated usurper, settled near the scene of his defeat and death by the victorious Theodosius.¹⁷

We must therefore see Vortigern as an official in the Imperial service in Britain, or, possibly one who returned to it, either when the later usurper Constantine seized power in 407 or at the time of the final restoration in 417. This last phase extended, according to Collingwood, from 417 to shortly before 429.¹⁸ If Vortigern had then risen to the position of provincial governor he could have been in office at the time of the first visit of St Germanus of Auxerre in 429. We know that the island was then being ravaged by the barbarians, over whom the saint organized the famous 'Alleluia Victory'. The cession of land to the Saxons may well have been a part of the settlement arranged after that victory. Vortigern may even have been pursuing this time-honoured policy before the visit of St Germanus. Whatever the exact sequence the policy had disastrous results in Kent and Vortigern returned to his own country.

Here again the traditional record of his efforts to erect a stronghold in the hills fits into the picture that is emerging from archaeological research in North Wales and the Marches. At the Breidden in East Montgomeryshire,¹⁹ at Old Oswestry in Shropshire and Eddisbury in Cheshire²⁰ evidence of a sub-Roman occupation has been found in the old Iron Age hill-forts. On the first site, where the coarse formless pottery of that age was found associated with late Romano-British wares, an initial date of *c.* 380 was ascribed to this occupation. The other two sites yielded the same formless coarse pottery, unassociated with Romano-British wares. All these sites lie within the territory of the Cornovii. At Moel Fenlli, on the Clwydian range in Flintshire, pottery was found many years ago. A single sherd from these excavations has recently been identified in the National Museum of Wales and I owe to the courtesy of Dr Savory the communication of this fragment, which is part of a bowl of Argonne ware of the 4th or early 5th century. Moel Fenlli is associated in the text of Nennius with Cadell (the son or grandson of Vortigern; see p. 24), who, with the help of St Germanus, dispossessed the evil ruler Benlli and seized the fortress.²¹

A final question arises: How did Vortigern earn his evil reputation? A later age may well have regarded the invitation to the Saxons as a sufficient reason; his contemporaries knew better. The settlement of barbarians as *foederati* within the limits of the Empire was a commonplace of late Roman policy. Vortigern's real offence is to be explained by the tradition of his long duel with St Germanus, recorded by Nennius. Garmon or Harmon,²² whose name is writ large upon the toponymy of Powys, was equated with St Germanus of Auxerre at least as early as the 9th century. The identification has been disputed on philo-

¹⁷ *Arch. Journ.*, xcvi, 134.

¹⁸ R. G. Collingwood and J. N. L. Myres, *Oxford History of England*, i, 297-301; the archaeological evidence for this extent is now confirmed by imports of Argonne ware, which are concentrated in the south-east and in isolated instances reach north and west to York, Wroxeter and Cirencester (Chenet, *La Céramique gallo-romaine d'Argonne*, 147). To his list add Moel Fenlli.

¹⁹ *Arch. Camb.*, 1937, 97-9.

²⁰ *Arch. Journ.*, cv, 63-4; cf. Wheeler, Lydney, 63-5.

²¹ *Historia Brittonum*, cap. 32-5 (MHG: AA, xiii, 172-6).

²² Cf. E. G. Bowen, *The Settlements of the Celtic Saints in Wales*, 32.

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logical grounds, but the objection is not conclusive.²³ However, the life of the Gallic bishop, written by his disciple Constantius, lends no support to the identification.²⁴ What is clear is that the Saint's main purpose was to combat the Pelagian heresy, which was widespread in the early 5th century. Heresy was probably the real offence of Vortigern, though his descendants seem to have returned to orthodoxy if we may trust the Pillar of Eliseg. The final sentence of that record runs: 'but Brdyw was the son of Vortigern, whom Germanus blessed and who was borne to him by Severa, the daughter of Maximus the king (*maximi regis*), who killed the king of the Romans.' It is this passage which probably gave rise to the later story of Vortigern's incest with his own daughter.²⁵ A careless writer, ignorant of the identity of the historical Maximus and his murder of Gratian, applied the words *maximi regis* to Vortigern himself. This is not unlikely when we remember the meaning of his name (p. 19). It was possible to believe anything of a heretic and so horror was piled on horror. The omission of Vortigern's name from the genealogies compiled in the circle of the ecclesiastically-minded Hywel Dda needs no further explanation.

THE CORNOVII AND POWYS. It remains only to justify the association of Vortigern and Powys with the tribe of the Cornovii. It has often been assumed that Powys was part of the territory of the Ordovices. This tribe, whose territory lay in North Wales, was practically exterminated at the time of the Roman Conquest.²⁶ The two towns ascribed to it by Ptolemy—Mediolanum and Brannogenium—cannot be certainly located.²⁷ Later Welsh tradition connects the Ordovices with the north-west—Cantref Orddwyff in Meirionydd, Dinas Dinorwig in Arfon, near Caernarvon, and Rhyd Orddwy, near Rhyl.²⁸ Though the evidence is slight it suggests that the tribe should be sought in Gwynedd rather than Powys.

The Cornovii, organized in Roman days as a *civitas*, included in their territory the tribal capital at Wroxeter (Viroconium Cornoviorum)²⁹ and Chester.³⁰ The name Powys is derived from *pagensis*. The term *pagus* is used of the territory of a *civitas*, the rural inhabitants being the *pagenses* or *pagani*. Brychwel, sixth in descent from Vortigern, was the leader of the British in the battle of Chester³¹ and the northern boundary of Powys was later set at Pulford, just outside that city.³² Moreover an early Welsh poem records the deeds of Cynddylan, a 7th-century prince of Powys, who ruled in East Shropshire and fell fighting the Saxon.³³ The reasonable conclusion is that early medieval Powys, stretching from Ystrad Alun, in mid-Flintshire, to the bend of the Wye near Hay, represents the unsubdued part of the territory of the Cornovii and that Vortigern, the founder of the early dynasty of Powys, belonged to that tribe.

[Appendix : see over]

²³ K. Jackson, *Language and History in Early Britain*, 281; cf. *Cymmrodorion Trans.*, 1946-7, 53.

²⁴ *Acta Sanctorum*, Julii VII, 200-21 (31st July).

²⁵ *Historia Brittonum*, cap. 39 (MHG : AA, xiii, 186).

²⁶ *Taciti Agricola*, xviii.

²⁷ *Ptolemaei Geographiae*, II, iii, 18; cf. *Archaeologia*, xciii, 8, 25 and 40.

²⁸ J. E. Lloyd, *History of Wales*, i, 119.

²⁹ D. Atkinson, *Report on the Excavations at Wroxeter*, 1923-7, 177-84.

³⁰ *Ptolemaei Geographiae*, II, iii, 19.

³¹ *Anglo-Saxon Chronicle*, s.a. 605/6 (Rolls Series, xxiii, 38-9).

³² J. E. Lloyd, *History of Wales*, i, 242, n. 76.

³³ *Studies in Early British History* (ed. N. K. Chadwick), 30-2 and 47; cf. Thomas Parry, *A History of Welsh Literature* (translated by H. Idris Bell) 10-1, who quotes from the elegy on Cynddylan: 'he went on foray beyond Tren to the presumptuous land', commenting 'he carried his attack beyond the river Tren (Tern in modern Shropshire), which was the boundary between Powys and Mercia'. The Tern is a tributary flowing into the Severn about one mile above Wroxeter.

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APPENDIX. *Early Genealogies of the Princes of Powys.*

SOUTHERN POWYS			NORTHERN POWYS	
Nennius cap. 49	Jesus Ms. 20, no. xiv	Floruit	Jesus Ms. 20, no. xviii	Harley 3859 no. xxvii
Guorthigirn	Gwrtheyrn		Gwrtheyrn	
Guortheneu	Gwrtheneu	390-420	Gwrtheneu ¹	—
Pascent	Pasgen	420-450	Cadern	Catel
Briacat	Riagath	450-480	Cadell Deyrllloch	Cattegirn
Mepurit	Idnerth	480-510	Pasgen	Pascent
Paul	Paul	510-540	Manogan	Maucant
Eldoc ²	—	540-570	—	Cinan ³
Eldut	Elaid	570-600	Brochvael	Brocmail
Moriud	Morvo	600-630	Yschithrawg ⁴	Cincen ⁵
Guidcant	Gwedgad	630-660	Kynan Garwin	Eliud
Pascent	Pascen Buellt	660-690	Seliph ⁶	Eli
Teudubwr	—	690-720	Beli	Guilauc ⁷
Teuduniaun	—	720-750	Coledawg	Elitet
Fernmail ⁸	—	750-780	Elisse	Brochmayl
—	—	780-810	Brochvel	Catel
—	—	810-840	Cadell ⁹	Cincen ¹⁰
			—	

For the dating of these pedigrees see p. 21. The names are spelt as in the printed sources. The dating in the central column is based on a count of thirty years to a generation, so as to indicate the approximate period during which each would have held the chieftainship.

¹ The descent from Vortigern to Cadell is confirmed by the genealogy in the 14th century Welsh Life of St Beuno (A. W. Wade Evans, *Vitae Sanctorum Britanniae*, 16-22; for an English translation see *Arch. Camb.*, 1930, 315-22).

² The omission of a generation is not uncommon in texts of this kind; the older version in Nennius is to be preferred.

³ See last note. The older version in Harley 3859, confirmed by the early poem in the *Book of Taliesin* (*Arch. Camb.*, 1930, 337), is to be preferred.

⁴ Brychwel was a leader of the Britons in the battle of Chester in 613 (*Anglo-Saxon Chronicle*, s.a. 606). Lloyd's criticism of this identity (*History of Wales*, i, 180, n. 70) does not seem justified in the light of the chronology here set out.

⁵ There is clearly confusion in the genealogy at this point. Cynan was certainly the son, not the father, of Brychwel. The Editor (*Y Cymmrodor*, ix, 181) suggests that the names of Cynan and Cyngen have been transposed; they appear in the reverse order in another of the pedigrees in this MS. (no. xxii).

⁶ Selyf was killed in the battle of Chester in 613 (*Annales Cambriae*, s.a. in *Y Cymmrodor*, ix, 156); he was clearly a young man. This is borne out by the fact that the separate genealogy ends with Selyf (Harley 3859, no. xxii), though the sons of Selyf are mentioned in the Welsh Life of St Beuno (cap. 10 in *Arch. Camb.*, 1930, 317). Eliud was presumably a brother, through whom the later royal line descended.

⁷ From this point the descent is confirmed by the Pillar of Eliseg, a contemporary record.

⁸ He was ruling when the *Historia Britonnum* of Nennius was compiled at the end of the 8th century; a fact noted in the text.

⁹ Death recorded in 808 (*Annales Cambriae*, s.a. in *Y Cymmrodor*, ix, 163).

¹⁰ Death recorded in 854 (*Annales Cambriae*, s.a. in *Y Cymmrodor*, ix, 165); he was clearly an old man as the same source records the death of a son in 814 (*ibid.*, 163).

African Corn-fields: a Review

by C. E. STEVENS

Atlas des Centuriations romaines de Tunisie. Ministère des Travaux publics, des Transports et du Tourisme. Institut géographique national. Paris, 1954. The photographs illustrating this article were inadvertently printed in the December 1957 number of ANTIQUITY, and are reproduced here (Plates IV, V and VI).

THE development of detailed cartography in the 19th century enabled observers to establish that both in the valley of the Po and in Campania around Capua the modern road system was laid out in such a way as to be clearly the palimpsest of an agrarian system by which land was blocked out in rectangles or squares. We possess what may be called an 'edition' of the Later Empire of technical works by members of the Corporation of State Surveyors (the 'agrimensores'), from which we learn what types of land should be so blocked out, according to what principles of survey and in what sizes. The application of the doctrines to the data of the maps demonstrated at once that they were showing as surviving to modern times the relics of land surveys and the consequent land allotments of the Roman period. Similar studies of maps have allowed students (not always with complete plausibility) to infer such allotments outside Italy—even in Britain.

That air photography might show us similar land divisions which did not appear even as palimpsests on a map was predictable from the first moment of its archaeological use. Nevertheless, the possibility of its assistance has obviously been immensely widened now that the techniques of map construction from air photographs and their application to normal civil cartography are becoming more fully understood. The modern surveyor may be operating over the very ground where his Roman predecessor was applying the methods and doctrines that are known to us: the men of the aeroplane with their camera, indeed, doing their routine duty, may discover how the Roman surveyor with his cross-staff, his *groma*, was doing his. And that is just what the 'Institut géographique national' under the direction of General Hurault, working from 1947 to 1951, has done for Tunisia. The folder that I review contains a magnificent series of 43 maps of the normal *Carte d'Etat major* standard, of scale 1/50,000 (a little larger, therefore than the 'one inch'). On these are recorded all traces of squares blocked out by Roman surveyors that no less than 15,000 photographs, under the interpretation of experts, have revealed.

It is necessary to explain in brief what system they have been interpreting. It is a lay-out of cultivated land in rectangular areas according to the principles of the Surveyors' Corporation. A *groma* is set up at a chosen point and two lines intersecting there at right angles are established—*decumanus maximus* and *cardo maximus*—and the former should run on an approximate east-west line. These lines are used as co-ordinates for establishing square or rectangular areas of identical size in each of the quadrants. The lowest mathematical subdivision within them is a square with sides measuring 120 Roman feet, which is known as an *actus*. If the area is a square consisting of 400 such *actus*, it can be measured as consisting of 200 *iugera* or Roman acres (the *iugerum* is equivalent to about five-eighths

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of an English acre). It was the tradition that the original land allotment of Romulus consisted of 2 iugera—a *heredium*. In such an area there will accordingly be 100 *heredia* so that it is appropriately called a 'century' (*centuria*). This standard 'century' of 100 *heredia*=200 *iugera*=400 *actus* was adopted, so the manual tells us, by Ti. Gracchus and is regarded as normal. In fact, though it speaks of occasional *centuriae* of different sizes and not always square, virtually all centuriation, as it has been recorded in modern times, corresponds to the standards of 200 *iugera*—and that is what we find in Africa (Plates IV–VI).

In 1833, Falbe, the Danish consul at Tunis, at risk to his life, established the existence of a modern road net-work bounding squares of the correct size around the site of Carthage. As efficient map-making showed the road-system of Tunisia generally, his work could be taken further; and studies by Schulten, Toutain and Barthel in the early years of this century indicated that centuriation could be inferred in much of the area that was taken over as a province by Rome after the destruction of Carthage in 146 B.C. and defined on its land side by a ditch, the *Fossa Regia*. But it is fair to say that we had no idea of its extent until the aeroplane and General Hurault's team unfolded the pages of what has been very fairly claimed for a major discovery as significant as that of a new literary text. These maps show us the centurial divisions, the *decumani* and *cardines*, which were marked, it seems, more usually by stone walls or, on sloping ground, by terraces than by the pathways which the professional doctrine required. Moreover, we are very often shown the actual boundaries of land plots within the centuries, the 'limites intercisivi', as they are styled—and we had never had any exact presentation of these. A map such as No. LXXXII (Chebba) compared with what Barthel thought that he could make out in 1911 truly takes the breath away. We must give our fullest unstinted admiration for the diligence of recording and the skill of presentation.

The Folder of Maps that I review has a few valuable prefatory words from M. Piganiol, but is, as it were, the text without the exegetical commentary. Nevertheless M. Caillemier, who has played a leading part in the recording, has explained it in an excellent paper to the *Institut géographique national*, available unfortunately only in a stencilled publication. Meanwhile for the printed word we are well off with a paper considering the remains rather from a historian's angle by that veritable god-father of studies agrimensorial and tenurial, M. Saumagne (*Comptes rendues de l'Académie des Inscriptions*, 1952). As both confess, it will take many years before all the problems which the survey has raised can even be posed for solution. In the meantime a reviewer's duty is to give explanation, comment and even, when helpful, criticism where he can. The team deserves all three.

These maps confine themselves, in the main, to the provincialized area of the Republic, defined by the *Fossa Regia* before Julius Caesar added large portions of the Numidian kingdom. This 'old' Africa (*Africa vetus*) forms roughly a right-angled triangle with its apex at Cape Bon and hypotenuse formed by the land frontier. The long coastal side extends southwards about 300 km. to Sphax, the short, westwards about 200 km. The maps give us complete coverage save in the extreme southern angle. Throughout the area, centurial boundaries are recorded. Barthel is shown to have been right in detecting two systems on different alignments; but there is a third also different. All are, however, identical in offering the standard *centuria*, and the attempt by Schulten to detect traces of the archaic method of blocking out in a jig-saw of rectangles (*per scamna et strigas*) is seen to have been misplaced.

The largest of the three blocks is the northern, which takes the northern segment of our triangle down the coast for about 150 km. and is correspondingly broad towards the *Fossa Regia*. The photographs here reproduced (Plates IV and V) fall within this northern

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block. The other two, successively southwards, are, as the triangular shape of the province presupposes, considerably narrower. The picture of centuriation presented by the maps is, even inside the individual block, by no means uniform. Sometimes the traces of the centurial grid itself are scanty; sometimes there are no traces at all. Sometimes the boundaries of allotments inside the centuries (the *limites intercisivi*) appear with great minuteness, sometimes they are almost or completely non-existent. One would like—in this preliminary stage of sizing the evidence up—to be certain how much one can press, map by map, the absence of normally present phenomena. The nature and depth of modern cultivation may explain much, and Dr St Joseph's work in this country has taught us how traces of occupation, unsuspected by the photographer, appear under differing conditions of weather and crop. Assuming that there was nothing where the interpreters have given nothing, we should clearly agree with MM. Caillemer and Saumagne that the high hills, the 'Djebel', were not centuriated at all (as along the spine, Maps xv and xxii, of the Cape Bon peninsula), though there may be Roman sites. We do, however, find at least rudimentary centurial boundaries striding over the foothills. M. Caillemer suspects that often these are rather cartographic determinants than actual enclosures of land to be cultivated (the doctrine lays down that land should be centuriated only 'where pruning-hook and plough may go'). This seems likely enough and leads us to notice the laborious accuracy with which the surveyors with non-telescopic instruments approached their task. When they were working in hilly country, it was necessary of course, to draw out the 2400 feet of the side of a century not by the actual surface of the ground, but 'cartographically', or the whole schematism would have failed. The practitioners describe a procedure of working, as it appears, with a line tied to two poles (*metae*), which they call 'cultellatio' and which was presumably employed here, while extrapolation from measured centuries on the flat with the aid of flags or even beacons is also possible, though not recorded by them as a method. The whole process needs the most careful attention to accurate measurement rather than scientific genius. Officers of the old Indian P.W.D. could have taken it in their stride, as our traditional conception of them would lead us to expect Romans to do. The revealed boundary lines are usually laid out with a straightness that disregards the slope of the ground, and even inside them, the *limites intercisivi* are more often straight than not, though they may, especially on the steeper slopes, be altogether bent to follow the contours. Plates IV to VI are specimens of these photographs, the first two each comprising an area of about 900 English acres.

Even in normal conditions these *limites intercisivi* are remarkably irregular, though we must not forget that they have had seven centuries to develop irregularities; 10×10 inside a *centuria* seems to be the commonest category, corresponding to the *heredium* of 2 *iugera*. But close examination with magnifying glass reveals 12×12 not infrequently, and such oddities as 7×7 , 12×11 , 11×11 , etc., appear, not factors of 200. Sometimes *centuriae* are simply divided by longitudinal bands, and (if here we can press the negative evidence) they are often not divided at all. The latter may imply large ownership. If the varying sizes of subdivisions take into account differences of soil fertility, far more attention must have been paid to this in the allotment than we had ever suspected.

The three different blocks are different only in the azimuths of their centurial lines (61° , 52° and 31° respectively, proceeding southward). M. Saumagne states (he should not really have put it as more than a conjecture) that the Carthage alignment corresponds to the horizon taken for the summer solstice when the survey was made. The practitioners certainly lay down that the *decumanus* line may be set out by sunrise at the moment of measurement and note—in remarkably obscure language—certain difficulties arising from such action. Probably the different alignments are explicable along these lines; possibly

an ingenious scholar may find occasion to offer hypothetical dates (he may be reminded of Benson in *Ant. Journ.*, xxxvi 205-213 !), but it seems hardly more than a possibility; and only the circumstances of history are very much use.

To examine in detail the very controversial problems connected with the establishment of Roman national and local administration in Africa would hardly be within the scope of a Review for this Journal; yet the new evidence is so imposing that it may be worth while indicating some lines along which it may be used. I feel less confident than those who have followed Mommsen in deducing the origins of centuriation in the northern block to the immediate provincialization after the sack of Carthage in 146 B.C. Centuriation is, in origin, only appropriate for land allotted to Romans either as colonists or by individual grants. But that the attempted colonization of Carthage by C. Gracchus in 122 B.C. involved a centurial grid is certain. Allotments up to a full century (200 *iugera*) were permitted, 6000 colonists were meant to go, and even though the colony itself was at once wound up, the tenure of allottees was subsequently safeguarded. The Falbe discoveries, completely confirmed by the aerial survey, will come in here; but Gracchus' colonial allotments will hardly account for the whole of the Carthage grid, extending virtually up to the *Fossa Regia*. The next name in land-settlement and colonization is that of Julius Caesar, to whom we might confidently ascribe an extension of the 'Carthage colonial' grid, which to the south will bring us to the junction with the different alignment, as seen on Map XLIX (Sidi Bou Ali). There is some slight evidence (rather less, it seems, than Barthel thought in 1911) of a true 'collision' between the two systems: we can observe traces of the 'Carthaginian' alignment over which a new one has been superposed. The southernmost alignment of our maps presents no problems of collision, for it is separated from the middle (Sidi Bou Ali) block by a strip of unarranged, uncenturiated holdings, correctly described by M. Saumagne as 'subsecivae' (seemingly the first tangible trace of a type of holding for which there is actually literary evidence). Finally a block outside 'Africa Vetus'—and our maps—altogether has given us from the region of Capsa (Gafsa) actual boundary stones of *centuriae*, which are dated to the reign of Tiberius—A.D. 29 (the text of one in *Inscr. Lat. Sel.*, 9375). There should be room for Augustus, to whom work of colonization and settlement is also ascribed by sources, in certainly the southern and perhaps also the middle system of centuriation of our maps. But certainty is premature.

Moreover, it becomes important for the historian if we can fairly infer from the absence of a grid in areas covered by our maps that no grid was ever there. Again in the vicinity of certain towns there are just one or two centurial lines without *intercivivi* recorded, which may suggest that they were only brought into a grid in, so to say, a token manner. This will obviously throw light on the very controversial and difficult question when cities left 'free' after the conquest of 146 B.C. (and therefore not admissible into grids) were actually made part of the regular Roman system of local government, were chartered, in fact, as colonies or *municipia*. Leptis and Thapsus, for instance, were clearly never in the normal grids, for they seem, from the maps, to have made strange efforts to produce centurial lines on alignments of their own. Thysdrus (El Djem) mentioned in various sources as a 'free town' and as a 'colony' has no centurial lines, apparently, near it, while Utica and Hadrumetum may have 'token' lines. It looks, indeed, as though the whole scheme of centuriation made up of the three differently aligned systems was completed at some moment during a process of change in status of urban communities, and some time in the reign of Augustus seems likely. Later colonial or municipal creations seem to have their lands clearly included in the grids, though local circumstances have quite often very considerably distorted centurial lines in their vicinities. Thus the system seems to have preserved ossified conditions of some rather short time. It is hardly possible to say

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more. The latest study of African colonization, that by Vittinghof (1951) reveals both the controversial nature of the problems and the light that the grid systems (of which his book knows nothing) can be hoped to throw. On the whole the systems remained as the skeleton of the land organization as long as there was a Roman Empire in Africa, so that the *centuria* appears naturally as the unit of taxation in legislation of the Later Empire.

The later period itself presents a final problem. Statistical information provided in the Law (*Codex Theodosianus*, XI, 28, 13) of A.D. 422 offers a figure of nearly 30,000 *centuriae* of land on imperial estates alone (thus leaving private property out of account) in the Late Roman Provinces of *Proconsularis* and Byzacena. M. Saumagne does not seem much worried in pointing out that the air photographs have found no more than 2200. But the discrepancy is surely not a little disturbing. Perhaps we shall find an explanation in the wider extension of these two provinces westwards from 'Africa vetus' and the *Fossa Regia* (and there is certainly evidence for imperial estates to the west). One awaits, therefore, with eagerness, for what a survey of this type outside the *Fossa Regia* may show. The maps themselves show traces of centuriation in this direction on a quite different alignment; and M. Caillemer has produced evidence of a grid with centurial stones on the very western borders of this enlarged *proconsularis* province, which incidentally disproves the vast system of co-ordinates which Barthel, on very little evidence, had presumed. There are clearly more discoveries in store over a wider range. Meanwhile within it, M. Saumagne's claim that pits for olive planting can be seen on some of the air photographs reminds us of Bradford's discovery of trenches and pits for vineyards in Apulia (ANTIQUITY, XXIII, 69). We would like to know what was grown, who grew it (is M. Piganiol right in his introduction to imply that our knowledge confirms Heitland's hypothesis of 'une grande Emigration paysanne de l'Italie'?)—and many other things. This new knowledge invites work and thinking in all directions.

If they can be done! In these present times one thinks pertinently of the dangers to Falbe's life in 1833. Will Nationalism, anti-Westernism, Neo-Destourism and such bring on that 'night when no man can work'? Will they allow this wonderful enterprise to bear all its fruits, so that we can assess Rome's treatment of her granary province with a precision that we had never believed within our reach? Let us keep our fingers crossed and maintain our hope. It is a tribute that we owe to General Hurault and his fellows who have inspired it.

Aegean Prehistory: a Review

by the late A. J. B. WACE

Professor A. J. B. Wace died in Athens on 9 November, 1957. In this review article he discussed Die Ältesten Kulturen Griechenlands by Fritz Schachermeyr (Kohlhammer, Stuttgart, 1955; pp. 300, 16 plates, 78 figures and 11 maps. DM. 18).

PROFESSOR SCHACHERMEYR is well known as an authority on the early cultures of the Aegean. He has read almost all there is to be read on the subject, he has written much, he has travelled much and he has been able to take some part in Professor Milojcic's recent excavations in Thessaly. Thus all scholars interested in early Aegean matters naturally welcome a new book by him, and eagerly look to see his views. This book is we gather the first part of a study designed to include the early history of the Aegean down to the end of the Bronze Age. This part ends with the close of the Early Bronze Age. If the study must be divided this is a suitable point, for most scholars now believe that the Greeks first entered Hellas at the beginning of the Middle Bronze Age.

A study of this character is naturally a synthesis and an interpretation of the results of excavations. Excavation results are usually treated as if they were facts of infallible authority. Unfortunately not all excavations have been impeccably conducted, and not all have been satisfactorily published. Even the most modern of our excavators admit that they have learnt by experience and that they did in the past things they would now do otherwise. So we must remember that the quality of excavations and excavation reports is uneven. The work at Besika Tepe is, to use a colloquialism, not in the same street as the Cincinnati excavation at Troy. Too many excavations have been 'one man digs' and inadequately equipped and staffed. Too many remain unpublished. Here a leading example is the German work in Aegina. The Aegina excavations were those of a site of great importance, but no properly documented report has yet appeared. Now the death of the excavator may well lead to this work also joining the list of the unpublished and unpublishable. It is the fashion to decry Schliemann. He was, however, almost the first to insist on the vital value of stratification, and he did issue with reasonable promptitude long, well illustrated reports. He was the originator of Aegean archaeology and he was wise in his generation. Let us show our wisdom by caution and modesty in our generation.

Here another word of caution may be inserted. There are certain objects in museums which have come not from excavations, but from the hands of dealers. Prominent examples of this are the gold and silver vases in the Benaki Museum alleged to have been found in Euboea. This is merely a dealer's provenance and should not be used in any scholarly work. At least their reputed provenance should be disregarded, not used as the basis of any argument.

The book begins with an introduction giving the author's aims, a brief list of the more important excavations, the archaeological names of the periods and a chronology. Here it would be wise to distinguish better between excavation reports which should be factual and what we may term 'synthetic' works which are too often diluted with theory. A theory may be plausible and attractive, but . . . The time is past when a young student could be advised to think out a good theory and then to go and dig to prove it right!

AEGEAN PREHISTORY: A REVIEW

Next comes the early Neolithic phase. Here we are eager to learn the author's answer to the question, 'What was the origin of the Neolithic folk of Greece?' He answers it as many do nowadays by a variation of *ex oriente lux*. He believes that the Neolithic people of Greece came from the south-eastern corner of Asia Minor, Mersin, Malatia, and the area immediately adjoining to the east. He sets this out diagrammatically on his Map 1 on p. 53. According to this some of the Neolithic migrants went by land to Greece across the highlands of Anatolia to the Aegean and others by sea along the south coast of Anatolia. In postulating a migration of this character and laying down the whence and whither as its opposite ends we should ask why and how. Why did this wholesale migration take place? How did the Neolithic people manage to travel in such or (should we say?) sufficient multitudes by land or sea? The sea in Neolithic days was presumably no less restive than it is today, but what were the ships like? How many canoes or caiques would be required to transport a people? How did they know where to put in for water or supplies? How seaworthy was a Neolithic craft? Did they travel like the Maoris to New Zealand? Having once in the course of an Aegean voyage put in on a waterless desert islet I can imagine what a migrating Neolithic people must have faced. Again, if they went overland how did they travel and how long did the journey take? How did they carry their impedimenta? On mules? How did they know how to plan their journey so as to camp at suitable intervals at spots able to provide water and food both for man and beast? Did they know where they were going and how to get there? Or did they just travel in a hit or miss fashion? Having travelled with migrating families in the Balkans I know some of the problems that had to be overcome thirty years ago, and can imagine what kind of problems a Neolithic people migrating *en masse* in the 4th or 3rd millennium B.C. would have had to encounter. Caesar's account of the migration of the Helvetii shows what such a migration involved in a later and more civilized age. It is one thing to sit today in a comfortable study in Göttingen or Oxford and move a Neolithic people from Malatia to Pharsalus. It was a totally different thing for a Neolithic people to move, lock, stock, and barrel, several millennia ago. So we may be forgiven if we study maps like that on p. 53 in a spirit of honest doubt. The migration of the Phocaeans under pressure from the Persians took place something like three millennia later when conditions were vastly different.

The comparison of artifacts in selective illustrations like those on pp. 60 and 61 (Figs. 5, 6, and 7) is also not convincing. By selective illustrations of this kind we could suggest almost anything, but not *prove* it. The excavation of Khirokitia in Cyprus revealed a pre-pottery Neolithic stage which was followed by one characterized by a ware decorated in red on white with a 'combed' technique. The nearest analogy to this is the 'scratched' ware of Lianokladi. Are we to believe that this technique was brought from Cyprus to the Spercheus valley and to nowhere else in Greece? Now the latest excavations in Thessaly seem to show that the Neolithic culture there also began with a pre-pottery stage and that the red on white Sesklo style ware followed after a phase of early undecorated ware. We have long known that in Thessaly at least the earliest pottery was undecorated. The present state of excavation seems to show that in Thessaly the Sesklo style developed locally and may have been autochthonous. This still leaves the origin of the Neolithic people of Greece in question and a subject for debate. The future, we must hope, will bring enlightenment.

Professor Schachermeyr adopts the modern view, first indicated by Heurtley's work at Servia on the Haliakmon, that the first stage of the Thessalian Neolithic culture when well developed spread northwards into the immediately adjoining regions. Whether its influence extended as far as he implies in his map on p. 53 is another matter. From the Peneios valley to the Haliakmon or even to the Axios (Vardar) would not have been too difficult, but between there and the Danube there must have been much inhospitable country. He

has little to say about Neolithic Crete beyond 'Die Bevölkerung mag mit der Sesklo-Kreises enger verwandt gewesen sein'. This he bases on linguistic arguments which seem to us at present at least insecure and uncertain ground, on the analogy of a casual sherd or two, and the style of the early figurines. None of these reasons seem at all convincing. In the style of their pottery Neolithic Crete and the Sesklo or A period of Thessaly are quite unlike. In Crete the general tendency of the pottery is to rather heavy mud-coloured ware polished and decorated with incised patterns. In Thessaly the A wares are characterized by good fabric and well-shaped vases vividly decorated with red patterns on a white ground which vary in the several local centres. There is no apparent connection between Crete and Thessaly. To suppose so is a mistake. The arguments drawn from the figurines tend to overlook general characteristics and the paucity of the material which in some cases is of uncertain provenance and of dubious origin.

With the second or B Neolithic Period we reach one of the outstanding problems of Greek prehistory—Dimini Ware. This has several categories, but its main characteristic is painted decoration using a curious mixture of spiral and geometric linear designs. In comparison with the first or A Period the Dimini period was short. The Dimini designs have some likeness to those of the Tripolje-Cucuteni-Erösd culture. One school of archaeologists therefore assumes that the presence of Dimini Ware in Greece is due to an immigration of people from the North Carpathian area. This is illustrated by Map 3 on p. 122 which indicates the route supposed to have been taken. Here again we ask ourselves why and how did such a migration take place if indeed it did take place. From the map we see that the migrants are supposed to have ascended the Morava Valley from the Danube and descended the Vardar Valley to the Aegean. How did a large body of people accomplish this in Neolithic days and with Neolithic means? What were the conditions for land travel then? The route assumed is that of the modern railway, but conditions were very different in Neolithic days. It would have been far from easy to penetrate the wooded and mountainous area round the headwaters of the Morava and the Vardar without guides and without a planned route. Did the hypothetical Cucuteni migrants start with a definite plan and with a definite terminus? or did they travel at random? Had they any knowledge of the Aegean? So far nothing to link the Danube and the Peneios has been found and comparison of the Tripolje-Cucuteni wares and the Dimini Ware suggests that the likenesses are superficial and not fundamental. Illustrations like Figs. 19 (p. 101), 21 (p. 104), 22 (p. 106), 26 (p. 116), 27 (p. 118) are not convincing. By a similar selection of patterns and shapes it would be possible to suggest a connection between Cucuteni or Dimini and the Pueblo pottery of New Mexico. We would therefore prefer to maintain an agnostic attitude towards this theory which cannot be regarded as proved. Another difficulty is that we do not know the relative dates of the Tripolje-Cucuteni and of the Dimini Ware. Dimini Ware may have arisen spontaneously in Greece. Professor Schachermeyr says (p. 104): 'Ein autochthones und an verschiedenen Orten gleichzeitiges Auftreten sei es von Mäandern oder Spiralen am Beginn des Neolithikums braucht daher nicht zu überraschen.' If we adopt a 'not-proven' attitude on this point we can remain unmoved when we are bombarded with arguments about *Bandkeramik* and its E. Central European source, Torsion, and the origins of the megaron, that much misused word.

The archaeological field at the end of the Neolithic Period and on the eve of the Bronze Age is not clear. Black polished wares make their appearance with various methods of decoration and they have been attributed to influence from the north. Speculation on this point is premature. We would be wiser to await new stratigraphic excavations especially in the north of Greece before venturing to put forward any theory. It is to be hoped too that the excavations now in progress at Lerna may throw some revealing light on the problems.

PLATE I



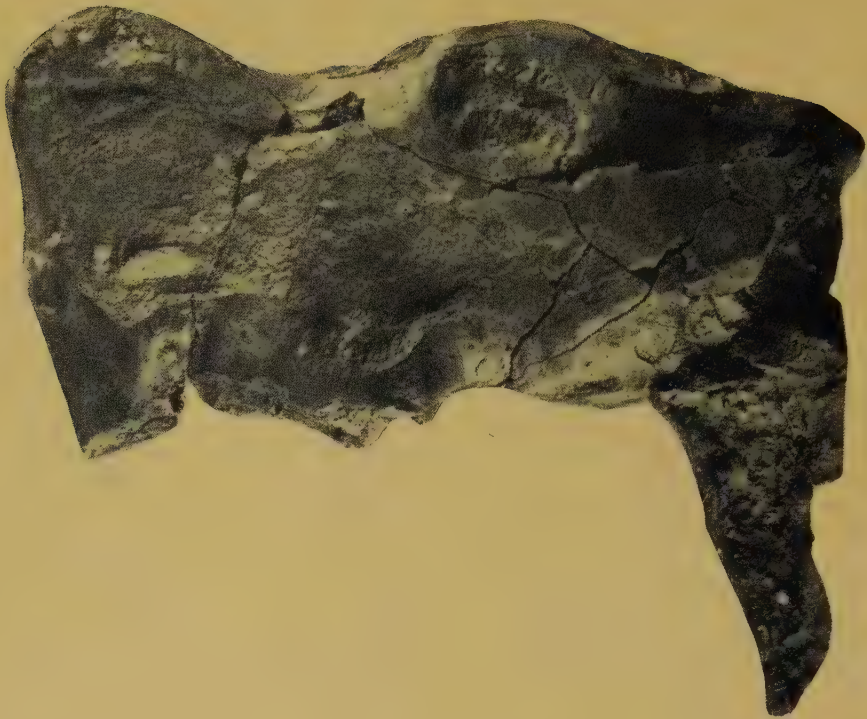
(a) Pavlov Hills, S. Moravia. The Pavlov site lies on the right-hand slope of the hill
See p. 81



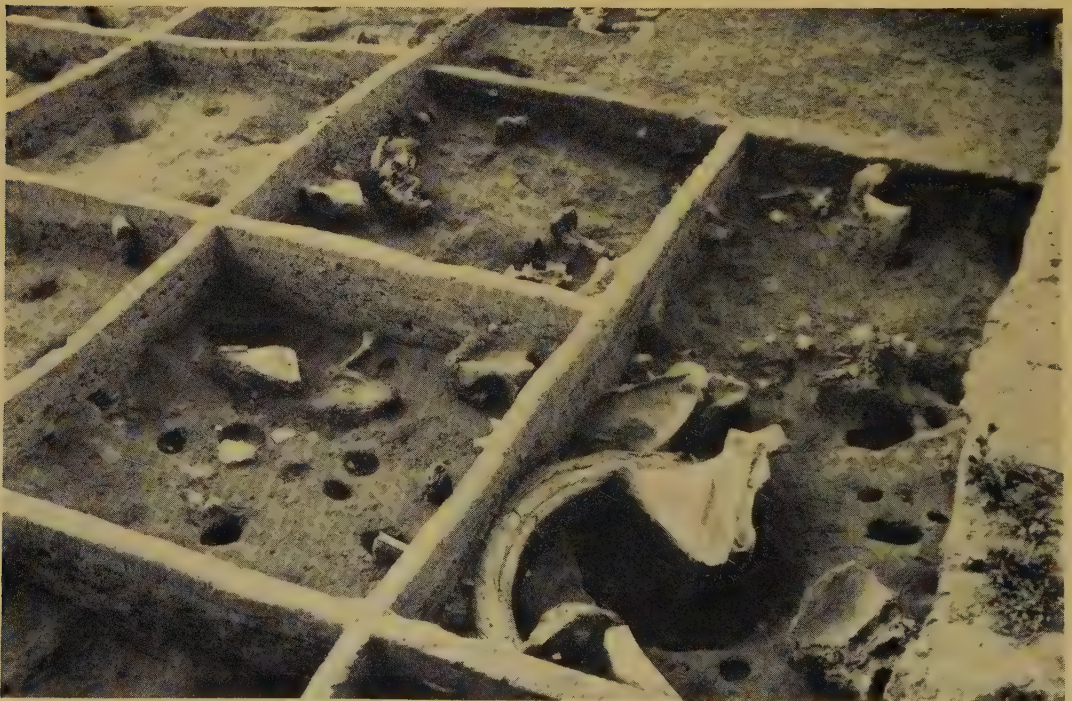
(b) Pavlov. Hearth and two shattered mammoth skulls. Edge of Hut III

Photos: J. Škvařil

PLATE II



(a) Baked clay statuette of mammoth, found in sunken hearth of Hut IX at Pavlov
[See p. 11 and Fig. 3]



(b) The statuette was found covered by a mammoth shoulder blade

See p. 11]

[Photos: J. Škvaril

PLATE III



Lumps of baked clay showing imprints of fingers and palms,
found at Dolní Věstonice, 1951 ($\times 3$)

[Photo J Škvařil

PLATE IV



Rectangular pattern of Roman centuriated field-system showing up beneath modern cultivation about 40 miles S.E. of Tunis

See pp. 26-7]

[Photo: Institut Géographique National

PLATE V



Another view of Roman centuriated field-system about 40 miles S.E. of Tunis

See pp. 26-7]

[Photo: Institut Géographique National

PLATE VI



Rectangular pattern of Roman centuriated field-system near Mahdia, Tunisia

See pp. 26-7]

[Photo: Institut Géographique National

PLATE VII



Group of four *têtes coupées*, found in 1877 at Entremont, near Aix-en-Provence

[See p. 36]

[Photo: Schaffhausen Museum]



Hadrian's Wall and Military Way, near Housesteads

[Photo: A. H. S. J. Smith - Crown Copyright]

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In the meantime the author in his Chapter 12 gives a fair and reasoned statement of the facts so far as we can judge them at present.

In any case the close of the Neolithic Period is confused and this is made obvious by the author in his account of it (in Chapter 12). Much has been found and much remains to be found and there are many explanations, of which few give much satisfaction. The ingenious suggestions of Siegfried Fuchs should be viewed with suspicion. As remarked above, some day perhaps a new stratigraphic excavation in Thessaly or in Central Greece will bring new illumination. For the time being we should walk cautiously and avoid will-o'-the-wisp theories.

In Chapter 13 the author becomes involved with the spiral, the origin of which is always a favourite subject of speculation and has led to the expenditure of a great deal of ink. He thinks that as far as the Aegean is concerned the spiral started at Butmir in Bosnia and rolled down to the coast at Hvar in Dalmatia. Thence it travelled by sea down the Adriatic (see Map 3 on p. 122), called at Leukas, rounded Cape Matapan and turned north-east into the archipelago. It all seems incredible and it is better to let it rest there. The selective illustrations given are far from convincing.

In Chapter 14 he gives a short and excellent review of the various Neolithic movements and his interpretations of them. This is a most useful guide for the reader and perhaps might even be read before the preceding chapters on the 'Neolithikum'.

We now naturally come to the Early Bronze Age (Early Helladic, Early Cycladic, and Early Minoan). Here the author accepts the results of modern research in believing that the Early Helladic and Cycladic people were a new folk who came into the Aegean from Anatolia and overthrew the Neolithic culture. He thinks that the knowledge and use of bronze was developed in Anatolia well before the beginning of the Greek Bronze Age. He therefore begins with a brief survey of this period in Anatolia and rightly emphasizes the metallic character of the Early Helladic pottery. In his comparative illustration (Fig. 40, p. 155), however, one of the most characteristic shapes of that pottery, the sauce-boat, does not appear. He thinks that the herring-bone method of wall construction was introduced from the East. We should, however, remember that in Troy I at least the herring-bone construction did not show in a finished building because the walls were plastered over with clay. It was therefore not decorative. He thinks that the round buildings of Early Helladic are due to influences from North Africa which came via Crete. There is unfortunately a tendency in modern writers to believe that any new development must have come from elsewhere and could not have evolved locally in the area where it occurs. We should be cautious in accepting such suggestions and also the theories of authors like Fuchs, who are possibly plausible but do not carry conviction to an excavator. In Chapter 20 we are threatened with the 'battleaxes', and in Fig. 64 with tectonic amphorae. Here again we believe too much is made of too little. Writers are only too apt to forget how few are the facts we know. The author rightly votes against the idea of an Indo-Europeanization of Greece in the Early Bronze Age. For Early Minoan Crete he has Pendlebury as a safe guide. He does not, however, express a clear opinion about the so-called tholoi of Early Minoan date in Messara, and in Chapter 22 he toys with megalithic buildings. It is we think waste of time to try to derive 'megalithic' buildings from one source, whether in Spain or somewhere else. On the whole we think the author is less happy in dealing with the Early Bronze Age than with the Neolithic Period, even if we cannot accept all his ideas of the 'Neolithikum'.

After a brief survey of the Early Bronze Age as a whole, the last four chapters deal with a consideration of what influence the Neolithic and Early Bronze Ages had on later Greek culture. These are in their nature speculative. The first treats of the language situation in

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the Aegean area and the effects of the Aegean environment on the peoples who dwelt there. The second deals with the religious beliefs of the Aegean area and their effect on Greek religion and the third with the debt Greek culture owed to its prehistoric forerunners. The final chapter discusses how much of an Aegean linguistic stratum is embodied in the Greek language. That environment affects people is well known and that languages which are unrelated but neighbours acquire common characteristics is also recognized. How far, however, such features can be held to be survivals of peoples or conditions is another matter. Speculation on all these topics is a pleasant pastime, but cannot lead to definite results. How can we tell what was likely to be the language of the Neolithic Thessalians? What are definitely recognizable Indo-European characteristics? Religion again is a most uncertain subject for discussion. In reading these chapters we feel we are on a slippery surface. At any moment a new discovery may overturn a cherished theory or an expert change his opinion. Even the former belief in the so-called pre-Hellenic terminations is being doubted by some scholars. The author does, however, accept Ventris's decipherment of Mycenaean Linear B. The recognition of this as Greek is one piece of firm ground in the uncertain field of conjecture. The author does, however, call the houses at Mycenae where tablets have been found, shops. This is an error. They are not shops nor adjuncts of the Palace, but private houses. Reference to the excavation reports shows this, and it is a pity that this error occurs in a book which is probably more likely to be read generally than the excavators' own reports. This warning is necessary to prevent an error of this character from being perpetuated in text books.

Although as will have been realized we cannot see eye to eye with Professor Schachermeyr we are none the less grateful to him for his excellent widespread survey and his stimulating analysis of the discoveries so far available for our studies. We can warmly recommend his book to all who need a conspectus of the earliest cultures of Greece and we look forward keenly to the sequel which will we hope carry the story to the end of the Bronze Age. Congratulations on a stimulating and readable book.

Notes and News

EASTER CONFERENCES, 1958

The Prehistoric Society will be holding its Spring Conference this year in west Cornwall from 10 to 14 April. The conference will be centred on Penzance, and will include excursions in east and west Penwith and a programme of lectures by leading local archaeologists. Those wishing to attend this Conference or to join the Prehistoric Society should write to Miss J. M. Bull, 16, Pembridge Gardens, London, W.2, who will forward particulars of membership. The annual subscription is two guineas; there is a reduced rate for those under 21. The Cambrian Archaeological Association has also been holding Easter Conferences for the last few years, a venture that began, most appropriately under the portrait of Sir John Rhys in Jesus College, Oxford, in 1954, when the theme was the development of archaeology in Wales. This year the conference will be at Bangor between 8 and 11 April and the theme the ancient past of Gwynedd. Those interested should write to Professor Jones Pierce, Brynhyfryd, Talybont, Cardiganshire.

RHONE-RHINE COLLOQUIUM, 1957

The first International Rhône-Rhine Colloquium was held at Tournon-sur-Rhône between 19 and 22 September, 1957; it was organized by Monsieur Blanc of Valence and directed by Professor J. J. Hatt of Strasbourg. Archaeologists from Great Britain, Germany and Italy assembled to discuss with their French colleagues the particular problems of the archaeology of the Rhône and the Rhine. Three permanent committees were set up to discuss the problems of the Neolithic (Secretary M. Escalon de Fonton), the Late Bronze Age (Secretary Professor Kimmig), and the Celts in Southern France (Secretary M. Benoit), and it was decided to hold the next Colloquium in Marseilles in 1959 and the following one in Strasbourg in 1961. Anyone interested in this informal but highly valuable approach to the study of problems in eastern France, Switzerland, western Germany and north-western Italy should write to one of the three Secretaries or to Professor Hatt at Strasbourg, or M. Blanc at 12, Rue André Lacroix, Valence (Drôme).

INTERNATIONAL CONGRESS, HAMBURG, 1958

Next August the fifth meeting of the International Congress of Prehistory and Proto-history will be held in Hamburg under the Presidency of Professor Gerhard Bersu. Invitations to attend the Congress were sent out last November, and it is hoped that they will have been received by all those who would like to attend it. We are asked to state that attendance is open to all, whether they have received an invitation or not; in spite of all their efforts it has been hard for the organizers to obtain the addresses of everyone likely to be interested, and any omissions should therefore be attributed to this purely general difficulty. The Congress is divided into nine sections, and in each section a day has been set apart for the discussion of a single subject. Amongst those selected for discussion are standard questions in the publication of excavation reports; new techniques; the influence of Mediterranean culture upon the barbarians on its margin; and the survival of Cro-Magnon man into later times. There are excursions before and after the Congress, each lasting for a week. Those who contemplate attending should write for further information to the President or bureau of the Congress, Frankfurt am Main, Palmengartenstrasse 10-12.

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PROFESSORSHIPS OF ARCHAEOLOGY

Dr R. de Valéra, Archaeology and Place Names Officer of the Ordnance Survey of Ireland, has been appointed to the professorship of Celtic Archaeology at University College, Dublin, vacant since the death of Professor Seán Ó Ríordáin in April 1957, and Mr P. L. Shinnie, until recently Archaeology Officer in Uganda, and previously Commissioner for Archaeology in the Sudan, has been appointed to the Professorship of Archaeology in the University College of Ghana at Achimota to succeed Professor A. W. Lawrence who has resigned.

GWERIN

We welcome *Gwerin*, an International Journal of Folk Life which first appeared in June 1956. The possibility of a separate journal for Folk Life was discussed at the Celtic Folklore Congress held at Stornoway and Oban in 1953. It appears half-yearly at 7s. 6d. an issue, post free; the editor is Dr Iorwerth Peate, Curator of the Welsh Folk Museum, St. Fagan's Castle, near Cardiff, and the publisher Basil Blackwell of Oxford. The field of *Gwerin* is the folk life of Great Britain and of Ireland, but articles on related problems in Scandinavia and Europe as a whole are welcomed. Dr Peate is assisted by an advisory panel consisting of T. W. Bagshawe, A. T. Lucas (Director of the National Museum of Ireland), Professor Estyn Evans, B. R. S. Megaw, I. A. Whitaker, and F. G. Payne, the Deputy Curator of the Welsh Folk Museum. Let us hope that the growing interest in Folk Life which this journal betokens may one day wake the English to the necessity of creating a National English Folk Museum. Wales and the Isle of Man are well ahead of England in this respect, and Scandinavia is streets ahead. The grounds of a National Trust house within Whipsnade distance of London would make an admirable site for a Folk Museum: Why cannot we have our own Sorgenfri?

THE SCHAFFHAUSEN CELTIC EXHIBITION

One of the great archaeological events of 1957 was the *Kunst und Kultur der Kelten* Exhibition, organized by Professor Dr W. U. Guyan in the Museum zu Allerheiligen which he directs at Schaffhausen. This was open from August to November at Schaffhausen and was subsequently transferred to Cologne. It was most imaginatively put together to illustrate all aspects of Celtic art and culture and included some of the great treasures of European archaeology such as the Amfreville helmet (always badly displayed in the Louvre), the Bouray god, a group of four *têtes coupées* from Entremont, the Dieu-Porc from Euffigneix, fragments of the Rinkeby cauldron, the Parsberg fibula, and some of the remarkable new material from the St Ingbert grave in the Saar published by Keller in *Germania* (1955, 33ff.).¹ What was most valuable for a student was the material from a large number of provincial German Museums which would have taken a great deal of time and energy and money to visit individually. There were two great gaps in the material collected; Czechoslovakia and the British Isles. Czechoslovakian Celtic material was already being used in a display of Czech arts in Paris. There seems no valid reason for the extremely poor representation of England, Scotland, Wales and Ireland at this exhibition except the intransigence of museum curators and the non-co-operation of Museum committees. We all know that it is not possible for the British Museum to let objects leave its precincts (is this still a good rule?), and by the same token it was not possible for the National

¹ A view of the *têtes coupées* from Entremont is reproduced here (PLATE VII). Their recent publication by Fernand Benoit in his *Entremont: Capitale celto-ligure des Salyens de Provence* (Aix-en-Provence, 1957) and *L'Art Primitif Méditerranéen de la Vallée du Rhône* (New edition, Gap, 1955) will be discussed in a forthcoming article in *ANTIQUITY*.

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Museum at Copenhagen to send the Gundestrup bowl to Schaffhausen, but was it good for the national pride of the British and the Irish or—more important—the balanced representation of the Celts in this exhibition, that there were no examples of pre-Christian art from Ireland in the exhibition, and the only actual examples of Celtic art from Britain were the Birdlip Mirror and the Sudeley enamelled horse-trapping? All honour to Schaffhausen for organizing this exhibition, and to the Gloucester Museum and Mrs Dent-Brocklehurst for having the courage and imagination to lend their treasures. It is good to know that, just as Martin Hürlimann made, with Professor Pallottino, *The Art of the Etruscans* out of the Zurich Etruscan exhibition, he is going to make *The Art of the Celts* out of the Schaffhausen exhibition, but with additional photographs taken in the British Isles. He has already published some of his excellent photographs in the special number of *Atlantis* for July 1957 devoted to the Celts.

BIBLIOGRAPHY OF FRENCH ARCHAEOLOGY, 1945-55

The *French Bibliographical Digests* are edited and published by the Cultural Division of the French Embassy, 972 Fifth Avenue, New York City, 21. Already nineteen of these valuable publications have appeared, and now five are being issued dealing with the studies done in France during the last ten years in the field of archaeology. They are directed by Pierre Amandry, Professor of Classical Archaeology in the University of Strasbourg, and are being compiled jointly by a group of professors in his university. Part I, published in December 1956, deals with the Eastern Mediterranean and is the work of Jean Leclair, Professor of Egyptology at Strasbourg. Part II (the Near East) and Part III (Greece) are the work of Amandry himself. The fourth booklet deals with Italy and North Africa and is done by Gilbert Picard, Professor of Roman History. The final booklet will deal with France and is the work of Jean-Jacques Hatt, Professor of National Antiquities. These Digests, while intended primarily to make the contribution of French scholars better known in the United States, are of great value to all archaeologists. In his preface to Part I, the Director-General of the French Ministry of National Education says that 'libraries, university departments and scientists will, upon request, be placed on a mailing list to receive the publications without charge'. Enquiries in this country should be made to the Cultural Counsellor, French Embassy, 22, Wilton Crescent, London S.W.1.

ARCHAEOLOGY FROM THE DECK

The prospectuses of Hellenic and Mediterranean Cruises make warming reading in the cold of an English winter. Swans and the Hellenic Travellers Club announce three cruises in 1957, the first from 1 April to 18 April, the second from 19 August to 3 September, and the third from 1 September to 16 September. Fairways and Swinford in association with the Society for Hellenic Travel announce a cruise to Classical Sites and Byzantine Monuments in the Eastern Mediterranean from 3 April to 18 April, and are planning an Autumn Cruise to Greece, the Black Sea and Turkey taking in Yalta, Kerch and Trebizond, as well as tours of Byzantine monuments in Serbia and Macedonia, a tour of Greece concentrating on the Persian war battlefields and a tour of the Greek cities of Southern Italy. For details of these cruises and tours apply to W. F. and R. K. Swan Ltd., 260 Tottenham Court Road, London, W.1, and to Fairways and Swinford, 18 St George Street, Hanover Square, London, W.1.

The origins of Hellenic cruises are described in Sir Henry Lunn's *Nearing Harbour* (London, 1934). He invited several scholars to lecture in 1899 on a cruise to Palestine and Egypt and during this cruise Canon Compton, then Headmaster of Dover College,

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planned what became famous as 'The Schoolmasters' Cruise'. *The Times* wrote a leading article praising the idea and Sir Owen Seaman extolled it in *Punch*:

'They went to where Penelope
Nightly unwove the web of day
Starving her suitors off till he,
Ulysses, let the long bow play'.

Mr Walter Robinow, who, as a schoolboy, went on this first archaeological cruise, and was again cruising in the Mediterranean with Fairways and Swinford in 1957, writes: 'Early in April 1901 a party of some two hundred—schoolmasters, wives and five or six school-boys—set off from London via Dover, Calais, and by special train to Marseilles, where they boarded the S.S. *Argonaut*.

The itinerary included a visit to the Island of Ithaca to see the so-called Cave of Odysseus. Next came Delphi, then, after passing through the Corinth Canal, Epidaurus, Nauplia, Mycenae, Tiryns, Aegina, Athens (two full days), via Santorin to Candia in Crete for Knossos. Here the late Sir Arthur Evans conducted the party round the excavations of the Palace of Minos, on which he had, only the previous year, started digging. After an exciting day at Knossos a return was made to Greece proper with a day on the Island of Sphacteria, and the following day at Olympia. On the return voyage to Marseilles a full day was spent at Syracuse.

As 1901 belonged, certainly in Greece, to the pre-motor car era, Messrs Lunn and Perowne arranged transport—a strange medley of horse-drawn carriages, ponies, donkeys and mules—to meet the party at the various ports of call, and convey them to the actual historical sites. The journey from the port of Nauplia to Mycenae and back was made by train. Shades of the House of Atreus at the sight of Mycenae railway station!

Lectures on the places to be visited were given on board by the more learned schoolmasters. As these were held after dinner on deck and in a subdued light, the lecturers were at times somewhat disconcerted by the stertorous breathing, not to say snores, emanating from their audience who had had a strenuous day on shore.'

The Hellenic Travellers Club was formed as a result of these cruises; it has now been purchased by W. F. and R. K. Swan Ltd. The Society for Hellenic Travel was founded in 1954 with the twofold object of 'keeping alive the interest in and promoting travel to places of historic, artistic and archaeological importance'. Its president is Mr R. M. Cook, Reader in Classical Archaeology at Cambridge, and the Secretary is Miss M. W. McCall, 4 Argyll Mansions, Chichele Road, London, N.W.2.

HAZOR EXHIBITION

The Anglo-Israel Exploration Society is holding an exhibition at the British Museum in the Assyrian Saloon, by permission of the Trustees, of the results of its first three campaigns at Hazor in Galilee, the great Canaanite city captured by Joshua. These excavations are being conducted by Dr Yigael Yadin (son of the late Professor Sukenik) and a team of assistants, including M. Jean Perrot, of the French Centre de la Recherche Scientifique, on behalf of the Society and the Hebrew University of Jerusalem, with generous support from the late James de Rothschild. The exhibition will be open to the public on 3 May, and will remain open for two months. It is reported that in the last season the excavations have discovered a new Canaanite temple lined with orthostats, the contents of which will be brought to London.

NOTES AND NEWS

BRITISH SUMMER SCHOOL OF ARCHAEOLOGY, 1958

In the summer of 1952 an Archaeological Summer School was held in Dundee; it dealt with The Problem of the Picts and was the basis of a book with the same title, which is, without question, the best and most authoritative discussion of this difficult problem that has hitherto appeared. The following year a summer school at Dumfries discussed the problem of Roman and Native in North Britain; in 1954 at Aberdeen the subject was The Scottish Castle, and in Edinburgh in 1955 the Summer School studied The Prehistoric Peoples of Scotland. The 1956 Summer School was in Kirkwall and Lerwick and discussed the Northern Isles, and last year at St Andrew's the topic was The Place-Names of Scotland. All these summer schools have been organized by F. T. Wainwright, of University College, Dundee, and Mrs Wainwright, and have become well known as the Scottish Summer Schools of Archaeology. Now they have turned into a British Summer School of Archaeology, and particulars of the first one are to hand. It will be held in Durham from 9-16 August this year; the subject to be studied is The Golden Age of Northumbria, and the lectures will cover the great and varied achievements of Northumbria in the period A.D. 650-800 in art and manuscripts, architecture and sculpture, letters and learning, poetry, metalwork and religion. Applications for membership should be sent before 1 May, 1958, to F. T. Wainwright, Ingleby, Newport-on-Tay, Fife.

MORGANNWG

The first number of *Morgannwg*, a journal devoted entirely to Glamorgan history, has just been published, and we wish it all success. It is published by the Glamorgan Local History Society (Cymdeithas Hanes Lleol Morgannwg) under the joint editorship of Professor Glanmor Williams, of University College, Swansea, and Gwynedd Pierce, of University College, Cardiff; the Glamorgan County Council made a grant of £50 from its Welsh Church Act Funds towards the cost of publication. This journal, together with the good news that the task of completing a full-scale county history of Glamorgan has been taken up again under the editorship of Professor William Rees, is ample evidence of the enthusiasm for history and antiquities in South Wales. This first number of *Morgannwg* (price 10s., payable to the Treasurer, C. F. Shepherd, Channel View, The Downs, Wenvoe, Glamorgan), contains articles on Glamorgan farming, on the teaching of local history, on the Cromlechs of Glamorgan, and a survey of recent archaeological excavation and discovery in Glamorgan by Dr Savory and Mr Leslie Alcock, as well as some remarkably interesting and scholarly reviews. One of the reviews and one of the articles is in Welsh and therefore addressed unfortunately to a limited public. While we recognize that some scholars find it easier to write in Welsh than in English, and have special views on the need for preserving Welsh as a medium of scholarly intercourse, may we suggest that *Morgannwg* and other Welsh journals should publish summaries in English of important contributions in Welsh that they print? The Scandinavian countries have long adopted this useful practice, and so do other countries like Czechoslovakia. It seems particularly unfortunate that in this present and first issue only those who can read Welsh may appreciate Professor Henry Lewis's excellent review of G. J. Williams's long-awaited book on that extraordinary figure Iolo Morganwg.

Reviews

AN INTRODUCTION TO THE STUDY OF INDIAN HISTORY. By DAMODAR DHARMANAND KOSAMBI, pp. xix + 324 + 32 plates and 1 map; Bombay: Popular Book Depot, 1956. Rs. 18.

This 'introduction' reveals to the student a novel and illuminating approach to a rather forbidding subject. The author is not a professional historian, but a mathematician, and he exhibits the natural scientist's preference for concreteness and objectivity. He admits too to being a Marxist though not an orthodox Communist. He diverges from the Stalinist party line in denying that India passed through a slavery stage, and does not even mention the odd views on *vajna* (sacrifice) expressed by the Communist hero, Dangi. The book begins with 64 half-tone illustrations; these exhibit concrete documents, indeed living history; for the Poona potters whose activities are illustrated in figs. 1-7 and the accompanying text are still using the same instruments and techniques as Harappan potters 4,000 years ago, and, following their behaviour, the historian can indeed 're-enact in his own mind the thoughts and actions of' some of his 'agents'. In the same way the rural cults still practised round the author's home town of Poona are used in chap. 2 as the basis for an account of the earlier, pre-class phase of Indian prehistory; they not only illustrate, but probably really perpetuate, rites and beliefs entertained by country folk in preliterate times; microliths are very frequently found on these anciently hallowed spots. (Kosambi can use his own collections to demonstrate this point, though after inspection I do not believe that fig. 2,1 is a 'tanged arrow-head' or intentionally shaped). The author just as felicitously combines folk-lore and archaeology in interpreting the late literary record.

The Indus civilization, well described in chap. 3, is accepted as pre-Aryan. Kosambi gives grounds for inferring—direct evidence is painfully lacking—that the Harappan rural economy was based on dam, not canal, irrigation and harrow, not plough, cultivation. On that assumption Indra's defeat of Vritra, celebrated in many Vedic hymns, is interpreted in chap. 4 as the destruction of these hypothetical Harappan dams by the invading Aryans. But if the latter destroyed the Harappan irrigation works and the cities supported thereby, they made a positive contribution by introducing plough cultivation and more efficient animal husbandry. In the sequel after the invaders had conquered the Harappans in Punjab and Sindh their further expansion would have been rather the conversion of aboriginal food-gatherers to this 'Aryan way of (economic) life' than the expulsion or subjugation of pre-existing farmers; the converted savages would have joined some surviving Harappan peasants in a subject, but not strictly servile, *sudra* class which could easily become a caste owing to the contrast between the lighter skinned invaders and the earlier populations whether Dravidian or Australoid. (Since the book was written further excavation has disclosed some evidence for a probably pre-Aryan and certainly farming population in the Ganges valley and still more in the west.)

Now in the Ganges basin the 'Aryan way of life' could support a steadily increasing population of peasant cultivators, but not a corresponding multiplication of flocks and herds. Gradually therefore the standard of wealth ceased to be cattle, as it had been in the Rig Veda, to be replaced by the fruits of the earth while the patriarchal chieftain of the Punjab turned into the territorial prince in Bihar. He could not longer display or augment his wealth and power by extravagant horse sacrifices. (The *asvamedha*, the

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crowning ceremony invented by the Brahman magicians, had become fantastically costly and complicated in the post-Rig Vedic age); for his growing wealth consisted in the surplus exacted from the expanding population of *sudra* cultivators. So the beef-eating warrior gods who accepted and rewarded this sacrifice, must give place to older, less carnivorous deities. (Some, of course, would consume human victims, who by now were cheaper than cows or horses!). At the same time the development or revival of secondary industry and trade required a new morality to supersede the tribal morality of the Rig Vedic age when wealth was acquired by war and robbery. Such would be the economic background against which emerged new religions—Buddhism, Jainism—while Brahmanism was refashioned to eliminate blood sacrifices and to enthrone again deities traceable in the Harappan period or inferable even earlier.

Marxist analysis thus makes an eminently intelligible and fascinating story out of the documents surviving from India's great Dark Age. Admittedly these are very few and fragmentary. Between the collapse of the Harappan civilization and Alexander's conquest archaeology has identified certain ceramic styles, but revealed no details of the economy, polity or ideology of their makers and users. The written documents which survive are obscure and not at all well dated even relatively, while their authors were not in the least interested in technology, economics nor even political history. Kosambi displays a bold mastery of these sources though his interpretations are not likely to be universally accepted.

The later periods are treated in a no less stimulating way. It will suffice to conclude with an illustrative quotation: 'The process that had begun with the rise of Magadha but been interrupted by feudalism was inverted by the British East India Company: instead of the State becoming the greatest trader, the greatest trading organization took over the state'.

V. GORDON CHILDE

A HISTORY OF TECHNOLOGY. *Edited by* CHARLES SINGER, E. J. HOLMYARD, A. R. HALL and TREVOR J. WILLIAMS. Vol. II; The Mediterranean Civilizations and the Middle Ages. *Oxford, at the Clarendon Press, 1956. £8 8s.*

The second volume of this magnificent work follows quickly on the first (reviewed at length in *ANTIQUITY* (114, 1955), and fully maintains the high standards of its predecessor, both in text and illustrations. Having already reviewed the first volume so fully we cannot do adequate justice to the second in the short notice which, for reasons of space, is all we can devote to it here. The book is divided into five parts and an epilogue: primary production, concerned with mining and quarrying, metallurgy and agricultural implements; manufacture, concerned with such basic needs as food and drink, leather, spinning and weaving, furniture, ceramics, glass, prescientific industrial chemistry; the third part deals with material civilization (the medieval artisan, building and metal-work); the fourth with transport (roads, vehicles and ships); the fifth foreshadows the application of power to production in all aspects of civil and military life.

Where there is such an abundance of good things it is difficult to choose; but for the general reader (a term which embraces the readers of *ANTIQUITY*) we would call special attention to Dr Singer's epilogue, entitled *East and West in Retrospect* (pp. 753 to 769). Here is portrayed in clear and dignified language the ripe wisdom of the man who founded this *History* and has guided its fortunes so well, aided by a loyal and efficient staff. In assessing the relative contributions of East and West, Dr Singer is scrupulously fair, but he is, I think, a little inclined to undervalue the native contributions of westerners. It is of course perfectly true, on instance, that 'fine fabrics of Islamic origin . . . were used to enwrap the bones of Christian saints'. Fig. 682 shows a Cufic legend stating the fact that

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'there is no God but God'; it is woven into the fabric of the pallium of St Cuthbert (died at Jarrow in 687). How remarkable to find the Islamic confession of faith in such a context! Mention is made elsewhere of the artisans imported from the East by Benedict Biscop at about the same time. These too must have influenced both technology (e.g. building) and art; but we must not forget that the product of this hybridization was a native art that henceforward developed independently along its own lines. To it belong the treasures of Sutton Hoo, the carved stone crosses (Bewcastle, Ruthwell and many others), and the illuminated manuscripts (Lindisfarne, etc.). The technical skill needed to make such masterpieces as the Tara brooch and the Ardagh chalice was developed in these islands and owed nothing thereafter to foreign influence. Moreover, many of the art-motifs and much of the technique were already in evidence in pagan Saxon times. In contrast one might cite the example of Ethiopia where foreign technicians have been regularly imported for nearly two millennia, with negligible results. As in the parable, those with most talents make the best use of them. The comparison is legitimate because during the early Christian period Ethiopia, at one end of the civilized world, and Northumbria and Ireland at the other, were otherwise not unlike each other.

All concerned—and that covers patrons, printers and draughtsmen, as well as contributors and editorial staff—are to be heartily congratulated on this publication.

O. G. S. CRAWFORD

BARCLODIAD Y GAWRES: The Excavation of a Megalithic Chamber Tomb in Anglesey, 1952-3. By T. G. E. POWELL and G. E. DANIEL, *with contributions by others*. Liverpool University Press, 1956. £1 12s. 6d.

This is an account of the excavation of a Passage Grave in the island of Anglesey, which lies off the north-west coast of Wales, only about 60 miles from Ireland and less than 100 miles in a straight line from the famous Boyne Passage Graves. The book is fully illustrated by plans, photographs and drawings. The plan, like that of so many others in Ireland and elsewhere, is cruciform and the covering cairn appears to have been round, but it was not completely excavated. The chief interest lies in the designs made by picking (or should it be called, as in this book, 'pocking'?), as in Ireland. They consist of spirals, lozenges and zigzag lines, and we agree entirely with the authors in their interpretation of them as mostly the disintegrated remains of a human figure, derived from those in Iberia. The significance of these designs is more fully discussed in the reviewer's book, *The Eye Goddess*, written before this book was published. Other parallels to the design are to be found in Morocco and on the Niger; and we take this opportunity of calling attention to a resemblance, surely genetic, between the multiple arcs on the stone from Pola de Allande, Asturias (pl. 33) and those on a menhir at Tondidaro on the Niger. Both seem to be related to similar designs on Iberian bone idols.

At the top of Stone 22 the remains of a second spiral on the left seem to be faintly visible on pl. 16 and 28, as hinted at only on pp. 42 and 53. A natural excrescence on the stone might well have been used as a nose to complete a rudimentary face-pattern; compare the nose on a Portuguese stone, fig. 14.

There is a short preliminary account of the designs on the Calderstones near Liverpool, which almost certainly originally formed part of another Passage Grave. A full account of them is promised shortly. (*PPS*, 23, 1957, 20ff. Ed.)

The name of the monument comes from an obsolete English word *barmcloth*, O.E. *bearmclop*, borrowed by the Welsh and meaning 'apron'. The ending—*aid* gives Barclodiad the meaning of 'apronful'. *Cawres* becomes Gawres after the Welsh definite article 'y' (the) and means 'giantess'. The name thus means the Apronful of the Giantess, a type of

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name which, like the Devil's Apron and Samson's Bratful, occurs in many places associated with a legend. The whole subject is discussed in a special appendix by Mr Melville Richards. The wide dispersion of the legend and its local variations strongly suggests, to the present reviewer, that it may be a lingering echo from prehistoric times.

The publication of a special monograph to record the excavation of a rather important monument is a worthy achievement for which we should thank Liverpool University and Mr Powell, the Head of its Department of Prehistoric Archaeology. We want more of these monographs; for their publication leaves room in the *Proceedings* of learned societies (where otherwise they would have to be printed) for the less elaborate articles they are better able to publish, now that printing costs are prohibitive.

O. G. S. CRAWFORD

EXCAVATIONS IN THE QUETTA VALLEY, WEST PAKISTAN. By WALTER A. FAIRSERVIS, JR. *Anthropological Papers of the American Museum of Natural History*, vol. 45, part 2. New York (1956). pp. 165-402, 27 plates, 71 text figures, 580 designs, 15 tables. Price \$3.00.

This report represents the first attempt to solve by excavation the relative sequence of a variety of prehistoric wares found in the Quetta valley. The project formed part of a wider programme of field research in western Pakistan and southern Afghanistan sponsored by the Department of Anthropology of the American Museum of Natural History, New York, and undertaken between 1949 and 1951.

As a necessary preliminary a survey was made of sites in the Quetta-Pishin district and, less thoroughly, in the Bolan and Mastung areas. Surface sherds taken from each site suggested that settlement in the Quetta *tahsil* had been extensive in prehistoric times. Thereafter the population declined until the Islamic period and the concentration of sites in the centre of the valley points to a decrease in water supplies as the reason. The geographical background of the survey, which is well described, could with advantage have been illustrated by a contoured map, and place-names would have given actuality to the sites visited which appear in the report as nameless mounds distinguished solely by a series of numerals.

The survey completed, four sites were selected for excavation. On most of these Professor Stuart Piggott had previously noted a buff ware with geometric patterns in black paint which he termed Quetta ware. The survey showed that at Karez all surface sherds were of this ware and a trial-trench was dug in order to learn more about its cultural background; a hope not justified on that site. No complete structures were found, although a number of floors were uncovered and in the absence of a published section one must accept the assertion that the site was occupied during a single period.

At Kechi Beg nearby 'no stratigraphic differentiation of the two building periods' was made and although the site yielded type-wares, none of its pottery, now in Pakistan, has been published. Instead, Kechi Beg wares from other sites are illustrated, and confidence wavers upon finding a surface sherd of unmistakable Rana Ghundhai IIA 'Bull' ware included among the designs (No. 60). These Kechi Beg wares vary in both form, fabric and design. They include the black-on-buff slip ware which Fairservis suggests as the proto-type for Quetta ware, a curvilinear white-on-dark slip ware, and a polychrome ware closely akin to pottery found at Amri in Sind, some 350 miles away.

The remaining two sites proved more profitable. At Kile Ghul Mohammad a pre-ceramic period was associated with simple mud structures and bone and stone tools. A Carbon-14 test of charcoal from the upper levels of this period made by Dr J. L. Kulp gave a time range of 3500-3100 B.C. Coarse hand-made and basket-marked pottery appeared in the next level. A fine wheel-made black-on-red ware in KGM. III marked the arrival of a new

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ceramic, perhaps from northern Iran, which Fairservis equates with Rana Ghundhai II A. The succeeding level contained Kechi Beg wares and relates that site to the sequence thus established.

At Damb Sadaat, the lowest level excavated contained a ware described as belonging to a later phase of Kechi Beg which in Damb Sadaat II becomes the familiar Quetta ware. Carbon-14 tests give datings of 2400-1900 B.C. and 2250-1850 B.C. for these two periods. Here for the first time we glimpse something of the Quetta people themselves. Their houses were small and built of mud brick set on stone foundations. Each house had a fire pit, a clay floor and its bread oven. This consisted of a coarse pot on to which the dough was slapped, but embers being heaped around or inside, in much the same way as *nan* is still made there to-day.

The Damb Sadaat III levels represent at least two building periods and appear to mark the overthrow of the Quetta people. The area dug by Mr Leslie Alcock (Cut 3), who took part in the excavations on behalf of the Department of Archaeology, Pakistan, revealed a scene of violent disruption. Over the débris of a Quetta home was laid the podium of a massive building associated with a water tank of more than normal size. New forms of plain red ware vessels appear and a distinctive, if limited, range of black-on-buff designs is noted as Sadaat ware. Fairservis is not convinced that a distinction can be drawn between Sadaat and Quetta wares and it will be interesting to see whether future fieldwork succeeds in isolating the former from its Quetta ware association as seems likely in view of the occurrence of Sadaat designs at Ghazi Shah in Sind and on sites near Kalat located during field survey in 1948.

In general, the excavations yielded much material of interest but their value is to some extent lessened by the technical methods adopted on all sites, with the exception of Damb Sadaat, Cut 3. Faced with the difficulty of identifying mud brick buildings, the excavators resorted to a system of digging by 25 cm. levels. The pottery and finds were analysed on this basis and in the report are referred only to the main period and not to the natural stratum or artificial level in which they were found. It is therefore difficult to correlate the wide variety of plain and decorated wares found in the Quetta valley except within the broad chronological framework set up by Fairservis to cover the earliest prehistoric periods to the present day. It is essential that when this report is used as a basis for future research due allowance should be made for discrepancies which may arise as a result of the method of excavation, and it should be borne in mind that the purpose of the excavations was to define not cultural periods, but the trend of cultural forms.

B. DE CARDI

SICILY BEFORE THE GREEKS. By L. BERNABÒ BREA. Ancient Peoples and Places Series. General Editor: Glyn Daniel. Thames and Hudson, 1957. pp. 258, with 78 photographs, 50 line drawings and 7 maps. 21s.

This little volume is a most welcome addition to the new Thames and Hudson archaeological series, and Dr Daniel is to be congratulated on having secured it. This is the first account of the prehistory of Sicily to be published in English since 1909, and it has been written by the foremost living authority on the subject. Dr Bernabò Brea, who has been since 1942 Superintendent of the Antiquities of Eastern Sicily, has here given us a masterly and up-to-the-minute survey of prehistoric settlement in the island from Palaeolithic times down to the arrival of Greek colonists in the later 8th century B.C. The book also includes sections on the prehistory of the Lipari Islands, and incorporates the results of some of the author's most recent excavations, both there and in Sicily itself.

In his Introduction Dr Bernabò Brea acknowledges the work of many scholars who

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have helped to lay the foundations of our present knowledge of prehistoric Sicily, but the overall picture as he presents it is nevertheless to a great extent the result of his own labours, and much of the material discussed comes from excavations which he has conducted or supervised. The task of reinstalling the Syracuse Museum which fell to him after the end of World War II gave him the opportunity to review the whole of the vast material which had been accumulated since the later 19th century and to produce a new synthesis, which, while not invalidating that of Paolo Orsi, was much richer and more complete. Since then, his own excavations in the Lipari Islands, and particularly those on the Acropolis of Lipari itself, have revealed a series of previously unknown cultures there, whose importance is vastly enhanced by the presence of dateable Mycenaean pottery, clearly stratified with the local wares, from the 16th century B.C. onwards.

The material treated is enormous and represents the remains of many small local groups and of very complex historical processes. It is inevitable that any exposition of it must concern itself in large measure with the typology of flint, pottery, bronzes, etc., and Dr Bernabò Brea does not shirk this difficulty. Nevertheless, whilst his method is scholarly he contrives to avoid being overwhelmed by detail and to present a clear picture of the various cultural groups, their origins and interrelations, and also of the wider movements of which they form a part. At times he is able to throw a vivid light on social conditions, as when he tells us of the evidence of growing unrest and fear in the turbulent times which preceded and followed the break up of the Mycenaean civilization in the Western as well as in the Eastern Mediterranean.

This is not a 'popular' book in the sense of being particularly easy reading, but to anyone at all interested in what was happening in Mediterranean lands before Classical times it will be rewarding and even exciting. For the student it will provide a most valuable textbook, though from this point of view one cannot but regret that the plan of the series did not permit the inclusion of detailed references and a full bibliography. The translation (by C. M. Preston and Luigi Guido) is workmanlike and adequate, and the attractiveness of the book is much enhanced by the large number of illustrations, which are well up to the usual excellent standard of the series.

J. D. EVANS

STATION NÉOLITHIQUE DE LISIČIĆI PRÉS DE KONJIC. By ALOJZ BENAC.
(Separatum from *Glasnik Zemaljskog Muzeja u Sarajevu*, 1955.)

Lisičići is a Neolithic settlement in Bosnia, near Konjic on the Narenta, about 25 miles W.S.W. of Sarajevo. The 400 square metres excavated represent only a small part of the site. Two strata were distinguished, the lower showing irregular hollows, containing hearths and explained as huts, and the upper having a rectangular house (measuring about 22 by 16 ft.) with plastered walls of closely set upright timbers. The rich series of pottery is stated to show some continuity between the two strata, though with marked differences, such as the virtual absence of pedestal vases and of red coloured decoration in the upper stratum.

The culture of Lisičići shows few points of contact with that of the nearest Neolithic station at Butmir and little influence from the contemporary cultures to the north and east. Dr Benac considers that it represents a penetration inland from the Adriatic up the valley of the Narenta and connects the pottery with Neolithic material from the Dalmatian island of Hvar. Further afield he suggests comparisons with the Neolithic pottery of Malta, particularly with wares from Hal Tarxien and Hagiar Kim, and with the finds from certain South Italian and Sicilian sites. It should be noted that the comparisons are based on resemblances between individual pieces.

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The cultures as a whole, though probably connected, show considerable differentiation. The author relies largely on the older literature and does not cite the work of J. D. Evans for Malta or of Bernabò Brea for Italy.

The article is in Serbian with a lengthy summary in French. The pottery is fully published with a valuable conspectus of the shapes on pl. 1. The publication is a useful contribution to our knowledge of this important area, in which too little careful work of this kind has been carried out in recent years.

C. A. RALEGH RADFORD

THE EARLY CHRISTIAN AND PICTISH MONUMENTS OF SCOTLAND.

By STEWART CRUDEN. *Edinburgh: H.M. Stationery Office, 1957. pp. 20 with 43 illustrations. 5s.*

This official guide published for the Ministry of Works and written by the Inspector of Ancient Monuments for Scotland contains a general introduction to the whole group of Early Christian stones, together with a short descriptive catalogue of the collection at Meikle, Perthshire, now housed in a disused school in the charge of the Ministry. The well-selected plates cover the whole range of monuments discussed. Mr Cruden's text is conservative and objective. The vexed question of chronology is wisely relegated to a final paragraph which indicates the 'feasible central dates for the life of each main type'. His appreciation of the achievement of Pictish art—the most important single subject covered in the guide—is just and illuminating. The detailed list of the monuments at Meikle is lucidly written and forms a useful contribution to the literature on this subject. The purely Anglian monuments of the south and south-east of the Lowlands are not discussed, but the contemporary non-Pictish crosses of Iona and the west are included.

C. A. RALEGH RADFORD

THE ANCIENT CIVILIZATIONS OF PERU. *By J. ALDEN MASON. pp. xx + 330, 64 plates, 6 figures, 2 maps, table. A Pelican Book. Penguin Books Ltd., 1957. 6s.*

Dr Mason has divided his account of the ancient civilizations of Peru into four parts, under the headings of Background, The History of Peruvian Culture, The Inca, and Arts and Crafts. There is an appendix containing sections on sources, the spelling of native words, and a very brief glossary of Spanish and Quechua words. Finally, there is an extensive bibliography. Having recently completed a similar task, with a much smaller allowance of space, I can appreciate the problem Mason was faced with, and at the same time I can envy his good fortune in getting a grant from the Wenner-Gren Foundation for a visit to Peru for the express purpose of writing the book.

The first section is a brief but adequate account of the environment, physique and language of the modern descendants of those whose civilization is described. The History of Peruvian Culture, which follows, is based on the pan-Peruvian scheme of development which was first published in 1948 and introduced by me to readers of *ANTIQUITY* the next year (no. 91, 1949). It has been used in most subsequent publications, and remains a useful framework. Within it, Dr Mason has produced a competent summary of the archaeological succession, but he has made a minor modification in the early part which seems likely, in view of its unfamiliar use of the term Formative, to cause more confusion than it is worth. In matters of detail, I am prepared to challenge him on several points (Can he show me, for example, even one front-view warrior on a Classic Tiahuanaco pot?—p. 92), but only one of them, an underestimate of the significance of the Tiahuanaco-Huari horizon (p. 66), could cause a distortion of the general picture. He has dealt with the difficult question of dating by quoting both what for brevity I must call the guess system and the carbon

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system, with an obvious personal preference for the carbon system. I agree, and recent radiocarbon readings tend to support us.

In a work of this kind, the writer has to face the question of how much space to give to the Inca. We know a great deal more about them than we do about previous peoples, and they shared the same type of culture, so they can teach us a lot about them. On the other hand, the period of their greatness occupies less than a century in a total span of at least 4,000 years, so it is easy to exaggerate their importance and, further, a lot of what we know about them has been published so many times before. Dr Mason has decided to give them a good deal of space, and I think that he has done it in such a way as to preserve the balance of the whole. In his account, he appears to have made extensive use of J. H. Rowe's work in the *Smithsonian Handbook of South American Indians*, which is generally regarded as an admirable and, indeed, indispensable source.

Limitations of space must have made the writing of the section on arts and crafts a very difficult task; this account will give a good idea of their range, but specialists will find that it is not free from mistakes of fact. To give but two examples, the published instances of the 'popular' gauze of the Cupisnique Period consist, so far as I know, of one example from Supe (p. 247), and it is wrong to say that mercury gilding was used in South America (p. 265).

The bibliography is very extensive, and contains many items not referred to in the book, some of them of ephemeral interest (e.g. Bushnell, 1949!). On the other hand, such an important work as Bird and Bellinger on Paracas Fabrics and Nazca Needlework is omitted. It was published as long ago as December 1954, and unless the Penguin wheels grind exceedingly slowly it should have got in. This kind of bibliography is of use to specialists, but it would have been helpful to the general reader if something had been done to indicate the more important sources.

There is an extensive and useful series of plates, showing a wide variety of sites and types of object. Some of the pottery in groups has been reduced to about the limit, but the quality of the reproduction is good and even the designs on most of them have come out well enough to give a satisfactory impression. Most of the subjects belong to the Classic and Post-Classic Periods, the Formative being poorly represented, but unless an author is very fortunate he may find that the difficulties of obtaining more than the minimum from that period are insuperable.

The book is extremely good value for 6s.

G. H. S. BUSHNELL

DIE VOR- UND FRÜHGESCHICHTLICHEN GELÄNDEDENKMÄLER OBERFRANKENS. By KLAUS SCHWARZ. *Materialhefte zur Bayerischen Vorgeschichte, Hefte, 5. Herausgegeben von Werner Krämer. Im Verlag Michael Lassleben Kallmünz/Opf. 1955. pp. 204, 2 figures, 8 plates. Atlas: 8 pp., 1 figure, 30 folder plans, 7 maps. D.M. 25.*

The interests of British students of archaeology, in their own islands, have been largely centred on field monuments both on account of their number and variety, but also because of the relative paucity of 'museum material'. This has fortunately obliged them to make the most of the field evidence. By contrast, the opposite has generally been the case on the European mainland where the great quantity and richness of museum collections have overshadowed all else, so that it would sometimes seem that, apart from tumuli, earthworks were so rare as to be incapable of comprehensive study.

The inaccessibility in local publications of much Continental field work has strengthened this impression, but it is possible now, in the work under review, to welcome a substantial and clear presentation of the field archaeology of a region of much more than local interest.

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Upper Franconia is an area some 75 kilometres in length along either axis, and it can be compared in size only with Yorkshire of land divisions in England. In terms of archaeological geography, it may be described as the area of the headwaters of the river Main, with its principal tributary the Regnitz, and the central feature is the high limestone plateau of the Franconian Jura lying north of the river Pegnitz. As an area of early settlement it thus forms an extension of the Upper Danubian zone, but, to the north and north-east, the limits are clearly marked by the higher altitudes and barren soils of the Franken Wald. This part of the central German mountain range was an area of passage only, but beyond it lay the very different cultural province of the Saale, at least from Neolithic times onwards.

Dr Schwarz's publication is the culmination of a great deal of local study extending over a century, and brought to up date by numerous present day collaborators. The work does not claim to be exhaustive in the sense of a field to field survey, but it seems to approach this completeness, and the emergent distribution patterns will not be materially altered by future discoveries.

The monuments are classified under three main headings: Caves, Tumuli, and Fortifications. Within the region there are over seventy caves with evidence for prehistoric settlement, some of them having been first brought to English notice by Dean Buckland who visited Franconia in 1816. The caves are confined to the Jura limestone, and the majority overlook the valleys of the headwaters of the Regnitz, in the central part of the limestone massif. The distribution of Bronze and Iron Age tumuli is widespread both on the limestone, and on the plain westwards between the Main and the Regnitz. Both cemeteries and single monuments are involved, and amongst the former, there are fourteen cemeteries which contain more than thirty tumuli each.

Prehistoric hill-forts number over thirty. Evidence for Hallstatt-Early La Tène, and for Late La Tène, dating is available for some. They vary considerably in size, and include isolated plateau hill-top sites as well as promontory forts (*abschnittsbefestigungen*). The larger forts are found around the edges of the limestone massif, overlooking the river plains, and are widely spaced from each other.

The pattern of Early Historic fortification distribution is largely that of the Iron Age hill-forts, but there are more of them, and some sites were brought again into use. Promontory and round earthworks were erected in this period, and in this, as earlier, much use was made of rock outcrops and scarps. The maps of early castles after 1000 A.D., and of castle sites, show encroachments on the slopes of the Franken Wald, and intensification of settlement elsewhere.

The organization of the publication makes for clarity, and ease of use both in and out of doors. In the text volume there are preliminary sections on the history of field research in the region, and on each type of monument described. The relationship of settlement areas with tumuli, and hill-forts, is discussed, and it may be noted that no field systems earlier than the Middle Ages are considered to have been yet certainly identified anywhere in Germany. The nature of the terrain makes this indeed very probable.

Then follows the Inventory with full map references, description and bibliography for each site. Finally there is a bibliography by authors, as well as lists of sites by descriptive classification and a general index of place-names. Eight photographic plates give a clear impression of the nature of the environment and of typical monuments.

The Atlas is a loose-leaf volume containing some pages of explanatory text, twenty-six plans of earthworks of all kinds, and six sheets of site maps of tumuli cemeteries (*Grabhügelfelder*). The fortification plans are on scales of 1 : 1000 and 1 : 2500, and site maps are included in the corner of each sheet so that there is no difficulty in locating the monument. The cemeteries of tumuli are planned on the same scales, whichever is most suitable.

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There are seven folding relief maps, on a scale of 1 : 300,000, showing the distribution of caves, tumuli, prehistoric fortifications, Early Historic fortifications, early castles after A.D. 1000 and castle sites.

In the Preface, the Editor of the series, Dr W. Krämer, who has now succeeded Dr Bersu as Director of the Römisch-Germanische Kommission at Frankfurt am Main, and the author, Dr Schwarz, who is a member of the Bavarian field monuments conservancy, promise other survey volumes. These will be most welcome, and might they please each contain a simple geological map? It is much to be hoped that the example now set will be emulated far and wide beyond Bavaria.

T. G. E. POWELL

BONES FOR THE ARCHAEOLOGIST. By I. W. CORNWALL. *Phoenix House, Ltd., London*, 1956. pp. 255, 60 figures. 50s. net; *Macmillan Co., New York*, 1957. \$7.50.

In the hands of an expert, the animal bones recovered by archaeologists may yield information on everything from prehistoric man's favourite foods to his seasonal wanderings. Yet zoologists interested in such problems are lamentably rare, and the archaeologist must, too often, become both his own taxonomist and his own ecologist. This book has been written to assist him both in identifying the animal remains he recovers and in exploring the implications of these identifications.

Because the problems of identifying and interpreting faunal remains are intimately related, the author offers a sound piece of advice: He suggests that his reader 'construct for a given geographical region and archaeological period a list of the zoological groups likely to be encountered . . .'. Such a list would enable the user to recognize faunal assemblages and their ecological and chronological implications immediately; and the inclusion of extraneous elements in his bone sample would immediately alert him to the presence of unusual animals, or (more likely) the possibility of errors in his identifications. Indeed, one wishes that the author had followed his own advice. Had he compiled such lists and presented his material on this basis, the resulting book would have been far better. As it is, the animals described are a most curious assemblage, including the Pliocene *Hipparion*, but excluding the domestic cow. Some of the animals discussed, including the elephants, hyenas, rhinos and hippos, did roam Ancient Britain, and do deserve inclusion. But only the recent Piltdown business can justify the inclusion of pictures of a chimpanzee skull and an orang dentition. The skull of a cow, and the dentition of a sheep would have been more pertinent. Although the author states that 'The illustrations are chosen not so much to provide an atlas of bones as to demonstrate the zoological principles upon which determinations must be based', there are many instances where a more careful selection of material could have achieved both ends.

Again, the author suggests that 'No illustrations . . . can fully take the place of a comparative bone material . . .' and recommends that the student assemble a representative collection to verify his identifications. He further suggests that he consult experts where possible. This is excellent advice, for the student needs some way of distinguishing between the variations that separate species, those which reflect normal variability within species, and those associated with pathology, age or sex. He needs, too, to be told which bones may be reliably identified by species or subspecies, and which only by genus. Here, too, one wonders whether the author has followed his own advice. There is no evidence in the text or in the list of acknowledgments that he has consulted anything but the literature. (Museum catalogue numbers and acknowledgments would have been reassuring on this score.) Whether the illustrations were drawn from bones or merely redrawn is not certain. At any rate, the bone lengths supplied for guidance are neither

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ranges nor averages, which could have been obtained easily; with rare exceptions they are 'absolute measurements, taken from Hue's illustrations'. Nor do they necessarily deal with the species discussed. Is the American bison, whose measurements are given, of roughly the same size as the European bison which are described and illustrated?

Similar criticisms apply to the section on the identification of human bones. Except for tooth eruption, the author provides no means of assessing the age of children between birth and adolescence. Nor does he warn the reader that cranial sutures are so variable as to be nearly worthless in adult age determination; Todd's pelvic standards would have been more useful, but are not mentioned. As for sex determination, the reader is correctly warned of the difficulties of trying to sort out long bones. Rather, it is suggested that he use the skull, pelvis and thorax. The author is not to be blamed for the sex criteria for skull or pelvis, for these are the vague descriptions to be found in any anthropology text book, and are as good as any. But the thorax! To the reviewer's knowledge, this is the first time since 1880 that anyone has seriously suggested the use of the ribs and sternum for sexing. Yet sexing is necessary for stature determination from the long bones. Here it should be noted that the formulae given are based on cadaver lengths of modern American Whites and Negroes; if one is going to carry calculations of stature to two decimal places, one had better use one of the formulae derived from European populations.

If the book had been entitled 'Comparative Mammalian Osteology' one could object only to the absence of an index and glossary of technical terms. In its descriptions of representatives of each of the mammalian orders, it nicely supplements the comparative anatomy textbooks, which are usually content to contrast a few mammals with selected representatives of other vertebrate classes. The present title is misleading, for only in the Preface does one learn that fish, reptiles and birds are excluded, and only after reading the text does one discover that the mammals described are primarily European. Thus the American reader will find the book useless except for the identification of the more common domestic animals. He has no way of knowing how far the descriptions of European species and genera of elk, bear, deer and beaver apply to the species he finds. (In view of the American publication of the book it would have been courteous to add a subtitle, or at least a statement in the Preface, calling attention to this fact.) But the European reader has much the same problem, for it is often uncertain whether the author is describing a species now extinct in Britain or its modern African counterpart; without extensive research, there is no way of knowing how applicable the descriptions are. If the reader is biologically so naïve as to need help in telling a femur from a vertebra, one shudders to think of his species determinations.

It is to be hoped that in the next edition, the author will clarify his objectives and remove the interesting but extraneous material, substituting information that will really assist the archaeologist in identifying his bones. Although the present book goes far in this direction, there is still need for a practical presentation of 'bones for the archaeologist'.

LUCILE E. HOYME

ADVENTURES IN THE NEAREST EAST. By CYRUS GORDON. 192 pp., 25 plates, 3 maps. Foreword by O. G. S. Crawford, C.B.E. Phoenix House, London. 25s.

This book is an enjoyable excursion to many out of the way places within the confines of Egypt, Palestine, Syria, and the Tigris-Euphrates valleys. The journey begins as an archaeological tour and, as it gathers momentum, we find ourselves absorbed in ever-widening fields which lead to unexpected glimpses of a past which is never wholly divorced from the present. The author has taken part in several expeditions and is familiar with digging and surface exploration in many countries. Professionally his praxis is the ancient

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Semitic and cognate languages; he has a deft touch for magic, and a natural aptitude for expounding the processes of ancient religious thought.

Cyrus Gordon's experiences put him in close touch with the oriental peasantry, with whom he had a happy knack of approach, but perhaps his enjoyable relationships with them have made him neglect to notice that there is hardly an oriental townsman whose roots are not in the country. The basic character of the one is no whit worse than the other, although it is true that 'intelligence and education do not necessarily go together'.

Many topics are discussed which the reader would find difficult of access elsewhere, yet some examination of them has now become necessary for a proper understanding of oriental modes of thought and ways of living. The chapter entitled 'The Gods and Heroes of Ugarit' is indeed based on the author's own investigation of a set of Syrian tablets which for the oriental world are in some ways comparable to Homer's writings for the Greek. Similarly, for sociological studies there can be few more remarkable sources than the tablets which refer to private and public life in the Hurrian city of Nuzu, where incredible ingenuities of legal fiction were devised to circumvent ancient and inconvenient laws. In a chapter on the Dead Sea Scrolls the author tells us within a few pages what those discoveries really signify for Biblical studies and their bearing on ancient scriptures and contemporary religious trends. Next we are taken to the Coptic Fathers of Egypt who have left us many wise reflections for our delectation. 'The Fathers knew that virtue as well as vice is contagious and that good company is a sure way to personal improvement.' They knew all about neuroses and frustrations, which were personified as demons, and they knew why men succumb to them: 'Because we have thrown away our weapons, which are: contempt (for wordly things), humility, inaccessibility, and patience'.

This book unintentionally demonstrates that the sciences and the humaner studies are one and indivisible, and that, while every student of the past has his own part to play, he cannot do that effectively without reference to the whole.

M. E. L. MALLOWAN

ROMAN ROADS IN BRITAIN, vol. II. *By* I. D. MARGARY. *pp.* 288, 24 *plates and* 6 *maps. Phoenix House, 50s.*

This completes Mr Margary's account of the Roman Roads of Britain, of which the first volume was noticed in *ANTIQUITY*, 117, 1956. The first five chapters continue the area-by-area account, dealing now with roads to the north and west of the Fosse Way and the Bristol Channel, and at the end there are twenty-three pages of additions and amendments to the southern section. The narrative continues clear and readable, but there are again a number of minor criticisms to be made. For example, the solid line is still used much too freely on the maps—the worse case is that of the road from Hereford to Monmouth, of which the text honestly states that 'beyond Hereford no definite traces of a Roman road have been proved'—and on the bibliographical side the controversial road 821 is not an Ordnance Survey invention but has been published by Mr E. J. W. Hildyard in his *Summaries of Work on the Archaeology of Weardale*. But such points merely underline the fact that the book must be used critically and do not lessen one's admiration for Mr Margary's achievement.

Chapter VI deals with generalities, supplementing the introductory remarks to Volume I with sections on The Development of the Road System, Milestones, Constructional Observations, Finding and Recording Lost Roman Roads, and Future Work. Of these the first is plausible in general, but its very facility tends to obscure the fact that solid evidence for the date of particular roads is still all too rare. Two interesting questions escape notice: for how long were existing tracks made use of, and how far did the Roman

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roads (especially the Fosse) begin as ways not cast up? In the second section Milestones still receive somewhat cavalier treatment. What the Ordnance Survey Map of Roman Britain shows are sixty-three milestone *sites* (to which must be added the four mentioned in the introduction); the stones themselves number over a hundred, and the experience of other provinces suggests that there is a deal of information to be derived from them. The constructional observations are illustrated by eleven drawn sections, while the pages on Finding and Recording are the best in the book and are worthy of the closest attention from all field archaeologists.

Not so successful is the Appendix on the Antonine Itinerary, and since its inclusion here may lead to its use as a standard reference several points must be noticed. First, the best working figure for the Roman mile is not 1680 yards but 1620 yards (or 1480 metres). As a result of this miscalculation Mr Margary's analysis of the accuracy of the Itinerary figures is incorrect; in fact the vast majority of the minor errors are understatements—a matter of some interest because it bears on the relationship of the Itinerary to the milestone survey, noted by R. G. Goodchild in *Phoenicia (Berytus)*, vol. ix (1949), 91ff.). Secondly, the only sense in which Cuntz's edition is 'based upon the text of Wesseling' is that Cuntz (like Parthey and Pinder before him) has used Wesseling's pagination; since the Itinerary is an international document, it is perhaps a pity that Mr Margary has not followed his example. Thirdly, while it is laudable, indeed necessary, to treat the text as pure until it is proved corrupt, it is also worth noting what kinds of corruption are likely to occur. The only kinds admitted here are omissions and displacements. No mention is made of the fact that *v* can easily become *ii* on the one hand or *x* on the other, though there are several examples of this and it explains, among other things, how the Ordnance Survey can make do with one Mediolanum as against Mr Margary's two. Finally, the English mileages given are not always reliable. That for the stage from Towcester to Little Brickhill, which is twice given in the text as 12 and is used as 12 to support an argument, should be either 17 (to Little Brickhill village) or 16 (to Dropshort); so that the very difficult emendation of *xvii* to *xii* is unnecessary.

For illustrations his publishers have not served Mr Margary quite so well as in the first volume. The reproduction of the air photographs is a little less sharp and the arrangement of the drawn sections on pages 230 and 231 leaves much to be desired. They would probably stand the slight reduction necessary to fit them sideways on to the page, and this would give coherence both to the sections themselves and to the scale. Lastly, room must certainly be found in the next edition for some samples of Mr Margary's excellent strip maps.

A. L. F. RIVET

Note: The frontispiece of Mr Margary's book reviewed above is reproduced here (PLATE VIII) by kind permission of the Air Ministry and the Committee for Aerial Photography in the University of Cambridge, and the co-operation of Dr J. K. S. St Joseph and Phoenix House Ltd. (It shows Hadrian's Wall and Military Way from Grag Lough.)

LES ROUTES ROMAINES DE LA BELGIQUE. By JOSEPH MERTENS. *Archaeologia Belgica*, vol. 33, Brussels, 1957. Pp. 44 + 1 plate, 27 figs. and 1 map.

This popular exposition, originally destined for a journal of general appeal, has been reissued in the form of a small illustrated pamphlet which is the most up to date and reasonable thing to appear on the subject. The Roman roads of Belgium have long been the object of research by scholars in that country, but the research was for the most part carried out in the comfort of an armchair and was so steeped in the literary tradition that it often departed seriously from the material evidence. Merten's work, based on a complete set of

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air photos of the major roads, coupled with cuttings across some of them, as well as actual field work, has given a new and more unified picture of this *réseau routier*.

Mertens notes that the road system is a direct indicator of the economic and strategic importance of various regions in Roman times, and that its study permits one better to understand the development of the area (though that presupposes that one has some idea of the dating of the various parts of the system). Because of Belgium's geographical position, he concludes that the Roman roads served primarily a strategic purpose in connection with the defence of the Rhine. Naturally, once constructed they are alleged to have also served the economic needs of the region. But, he points out, the economy was probably more influential in the formation of the network of secondary routes linking important provincial centres than it was in connection with the great post roads. Whether or not the restricted commodity exchange of a minor Roman province was sufficient for this remains to be demonstrated. The administrative use of the road system is well attested to in the literary sources, and we derive a graphic, if somewhat modernized picture from Mertens' image of the many *fonctionnaires* who dash about over it. One almost expects to find them scowling behind the appropriate *guichet* in the next village along the way. Perhaps a bit of the present in the past, but one wonders.

The road system of Belgium is dominated by a series of central junction points; Bavai, Tongres, Arlon and Tournai in order of decreasing importance, and Mertens adequately describes the course of the routes which emerge from each of these centres, together with a summary of the interesting secondary routes in the Ardennes, the Hautes Fagnes, East Flanders and the Campine. Tracing the course on air photos is comparatively easy. Only previously known routes were especially photographed; however, utilization of the whole air cover of the country might have led to further finds of secondary roads and other minor features.

The reproductions of air photos with the text are rather more indistinct than the originals of course, but an unhappy variation in inking together with a coarse half tone screen accentuates this. The author explains the standard types of air photo sites which exist (with credit to the late Dr Crawford), but does not indicate the nature of the traces illustrated. In most of the photos either crop sites, soil sites or continuous field boundaries are the major indicators of the line of the road. None of the original photos were taken early or late enough in the day to show shadow sites in the rare—extremely rare—case of surviving causeways, contrary to the author's statement. The photos, all verticals, were made in insufficiently dry weather, a bit too early in the year, and judging from the originals which this reviewer has seen, they do not make optimum use of the possibilities of the method. They were also taken at far too low an altitude to display enough of the surrounding country and thereby permitting identification and discovery of the numerous sites which lie more than a few hundred metres either side of the road.

Mertens has made a series of cuttings across several of the major and minor routes. His sections, figured in the text, are beautifully drawn and of the highest standard of clarity, far better fortunately than the photos which accompany them. In most cases the large variety of building materials and methods seems to justify the assertion that the theoretical premises of the Roman engineers were scarcely fixed rules, and that each road gang more or less worked according to its own ideas, once the basic principles of solidity and good drainage were observed. A corduroy road through the Hautes Fagnes republished here is one of the most interesting examples of the solution in a rough and ready way of a nasty local problem, and the traces of the wooden roadway attached to a rock face in the Fonds de Leffe in the Ardennes are quite remarkable too. Mertens notes that samples of wood and peat from the corduroy road have been taken in the hope of getting a

radiocarbon and pollen dating for it, but this seems rather optimistic in view of the normal degree of precision (or imprecision) of these methods in such relatively recent material.

The chronology of the entire system seems to be rather unsatisfactory, based as it is on so little concrete evidence. A single milestone erected in 44 A.D. near Buzenol and some small finds from the secondary road near Elewijt (2nd century) are all we have. Roads, except where they enter stratified or datable settlements are notoriously difficult to date because of the scarcity of small finds, and even when these do occur, to connect them with the date of construction is possible only in rare instances. Further excavation on a larger scale than the narrow trenches employed, and preferably digs close to habitation sites should help. A full-length work is promised by Mertens on the entire question, and perhaps he can take up there some of these detailed problems which are after all somewhat out of place in a good, readable, popular work like this.

IRWIN SCOLLAR

THE HISTORY OF THE BRITISH FLORA: A FACTUAL BASIS FOR PHYTOGEOGRAPHY. By H. GODWIN. *Cambridge University Press*, 1956. pp. viii + 384, with 26 plates, 119 figures and 1 folding table. £4 10s.

Palynology, or the science of pollen analysis, has developed during the last three decades into a major source of knowledge of the past. The assembly of facts thus gathered, the assessment of what is now known, and the explanation of the limitations of the technique as well as its potentialities, were badly needed. Dr Godwin, as the leading authority in this country was the obvious man for the task, and he has done it excellently.

After a brief discussion of material and techniques he explains the background of Quaternary change, glacial and post-glacial, and the primary divisions into which the post-glacial period is broken down. Then follows the plant record, species by species, occupying the main bulk of the book, and finally a review of the pattern of change in the British flora. This, with the many outline maps and diagrams, enables the reader to see exactly how much is known, and the references permit ready tracing of any further detail required. The work is therefore an invaluable and almost indispensable tool both for the botanist and the archaeologist, and this review can only briefly mention a few instances to illustrate some of its many interesting facts and conclusions, especially those relevant to archaeology.

Of roughly 1500 species in the British flora nearly 200 can now be traced back to glacial times, or nearly 300 if Late Glacial records are included. Dr Godwin considers that fully two-thirds of our existing flora must have been present by the end of the Boreal period when the land bridge to the Continent was broken. Unfortunately, this decisive event can still not be precisely dated, but Dr Godwin shows that it occurred several centuries after the general spread of birch-pine woodland had overwhelmed most of the previously open park-tundra habitats, and thus put the brake on immigration of non-woodland species. The floor of the southern North Sea appears to have been dry until very roughly 7000 B.C. A very useful Table sets out the dating, pollen zones, dominant vegetation patterns, extent of forest cover, cultures and geological and climatic events of the past 13,000 years on the basis of present knowledge.

It is interesting to find how many familiar plants which later became weeds of cultivation go back to glacial times when they were colonists of open bare soil; these include the stinging nettle, cornflower and buttercup. Even the field poppy goes back at least to the Bronze Age.

Contrary to Caesar's supposed denial (which probably referred to Sweet Chestnut) the Beech is almost certainly native. It appeared in the Böhmerwald about 5-6000 B.C. and

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thence advanced at an annual rate of about 175–250 metres to reach the Baltic coast by about 2000 B.C., but only about 2000 years after its first colonization did it achieve dominance in the forests. It seems possible that clearance of the oak forests by man helped to give the beech its opportunity, on the limestone soils especially. Beech charcoal has been found on Neolithic sites in Britain.

Hazel played a large part in the pioneering of woody vegetation over Britain, outstripping the advance of the mixed-oak forest, and there is interesting evidence from a Late Bronze Age trackway in Somerset that hazel coppicing was already practised at that time. Gorse and Blackthorn are noted as closely associated with human settlement.

The production as well as the contents go far to justify the high price of this important work, which must unfortunately limit its circulation.

E. M. NICHOLSON

RECENT ARCHAEOLOGICAL EXCAVATIONS IN BRITAIN. SELECTED EXCAVATIONS, 1939–1955, WITH A CHAPTER ON RECENT AIR-RECONNAISSANCE. *Edited by R. L. S. BRUCE-MITFORD. Kegan Paul, London, 1956. Pp. 310 + 52 plates and 81 figs. 42s.*

Most of the eleven outstanding excavations which are described in this handsome book have already been fully published elsewhere. But the object of the editor has been not so much to make new material available to the specialist as to convey to the more intelligent general reader the progress achieved by excavation technique in Britain during the last ten years, and the range of its contribution to our knowledge of the past. The sites selected, for various good reasons, show a bias towards the Roman and later periods, and the Lowland Zone: indeed not a single excavation in Wales or the Mainland of Scotland is described.

It is not proposed to comment on the accounts given here of the excavations at Star Carr, Snettisham, Stanwick, Carrawburgh, Lullingstone, Sutton Hoo, Jarlshof and Abinger, which have already been fully described in separate books or reports. Professor Grimes's article on Excavations in the City of London is in a different category, for apart from the Charterhouse excavations, no detailed account has so far appeared of the many excavations carried out on bombed sites in the City of London since 1947 by the Roman and Medieval London Excavation Council. This name commemorates the great hopes that were entertained of medieval as well as Roman discoveries and which were not fully realized, except on certain sites, like St Bride's, Fleet Street, where a medieval building had maintained its function into modern times. The reason has been the almost invariable destruction of the remains of domestic buildings by later construction of basements, with the result that the bulk of medieval finds have come from rubbish pits or wells cut down to the Roman level. On the other hand, the knowledge gained of Roman London has been extensive, not only through the sensational discoveries of the Cripplegate fort and the Walbrook Mithraeum, but the many minor discoveries which have shown that large town houses of Mediterranean tradition were largely restricted to a small area around Cornhill, while most buildings elsewhere were of a more or less flimsy character. Professor Grimes's photographs and admirable diagrams reveal the extreme refinement of excavation technique needed, and achieved, to cope with the complicated stratification.

The editor's own excavation at Mawgan Porth is also described for the first time. This is a site of capital importance for Dark Age and Medieval archaeology in the West, not only by reason of its beautifully preserved peasant architecture, but for the cultural significance of its distinctive 'bar-lip' pottery. For this the writer shows to be the result of the substitution during the 9th century A.D. of new trade contacts with the Frisians

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and Flemings for the old ones with the Atlantic coast of Europe and the Mediterranean, already greatly weakened by the Arab conquests. It is high time that the probable repetition of this phenomenon in the traditional Flemish colony of South Pembrokeshire were investigated.

Mr Hurst's contribution concerns the work of the lately founded Deserted Medieval Village Research Group and his excavation at Wharram Percy (Yorks), which has opened up, virtually for the first time, a vast field of archaeological research.

The book concludes with two further chapters, in one of which Dr St Joseph reviews recent results of archaeological air photography. These include a number of Early Bronze Age parallel ditch ('Cursus') sites in the East Midlands and Yorkshire, several new 'Henge' sites in the northern counties, a rich harvest of Roman military sites in the north, particularly in south-west Scotland, and a very large number of deserted medieval villages. In the final chapter the editor reviews the law and practice of Treasure Trove.

It goes without saying that the standard of illustration of this book is very high, and that the numerous reproductions of reconstruction pictures by Alan Sorrell are a most attractive feature.

H. N. SAVORY

**DIE FEDERMESSER-GRUPPEN DES NORDWESTEUROPAISCHEN FLACH-
LANDES.** By HERMANN SCHWABEDISSEN. *Neumünster: Karl Wachholtz Verlag.* 1954.
pp. vii + 104. 106 figures (including 6 maps). DM. 23

The author of this well-produced monograph has coined the new term 'Federmesser-Gruppen', which may be freely translated as 'penknife-blade complexes'. It is used to designate a series of finds of evolved Upper Palaeolithic character, made over the last seventy years in the low-lying coastal plains between Schleswig-Holstein and northern Belgium.

Starting from an extremely detailed and comprehensive typological analysis of the sites in this area—mainly open stations, more or less surface in character—he proceeds to a discussion of their possible relationship to the final Palaeolithic of surrounding areas, and to the earliest Mesolithic of the Baltic region. Finally, with this material at his command, he attempts to approach in more ambitious fashion than hitherto a problem of wider significance, that of the actual process of replacement in north-west Europe of the great culture complexes of the Upper Palaeolithic, by the equally individualized but far more localized traditions of the early Post-Glacial period.

Thanks to the recent advances of pollen analysis and radiocarbon dating the climatic and chronological context of this process is now relatively well known. During the 14th millennium B.C. the ice finally withdrew from the southern shores of the Baltic, and the first human communities of the Upper Palaeolithic epoch made their appearance in the area. These practised the so-called Hamburgian culture, in which traits of evidently Magdalenian origin, are combined with other elements perhaps ultimately derived from the Gravettian cultures of South Russia. Ecological conditions of a 'sub-arctic' character are indicated by the so-called Oldest Dryas flora, Firbas' Pollen Zone Ia. This phase was followed by the somewhat milder regime of the Bølling Interstadial towards the end of the 14th millennium, which in turn gave way to a return of colder conditions during the Older Dryas phase of Firbas' Zone Ic.

The Hamburgian cultures of the South Baltic seem to have continued until well into the Bølling Interstadial. To the South throughout the high ground north of the Alps, and to the south-west as far as the Pyrenees, scores of cave sites yield the striking products of the fully evolved Magdalenian. In the classic region of south-west France little can be

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deduced regarding their precise chronological position in the Late Glacial sequence beyond the fact that they are generally coterminous with the last truly arctic fauna. But in Southern Germany rather fuller evidence is available, particularly at the typical late Magdalenian site of Andernach am Rhein, where the artifacts are included in the weathered surface of the final loess deposit of the region and overlain by a volcanic pumice formation. The latter can be dated on botanical evidence to the subsequent temperate climatic phase, the Allerød, which immediately succeeded the Older Dryas. Unless, therefore, the Magdalenian of Andernach was buried deeper in the loess than most authorities claim (the find is an old one, and the stratigraphy has not been recently checked) we are probably safe in assuming that the Magdalenian of the Central German Highlands was still current at the beginning of the Allerød, that is to say, according to well established radiocarbon dates, during the 10th millennium B.C. Some further support for the climatic dating is available from the vertebrate fauna.

On the latest radiocarbon results the Allerød can be estimated to have lasted from about 10,000 to shortly after 9000 B.C., and it is to this period that the author would assign the finds with which he is primarily concerned, in the Low Countries. The sites themselves consist in part of mere surface scatters brought to light by ploughing or forestry operations, but also include a proportion of truly associated finds buried a short distance below the surface. Careful excavation in a number of instances has shown that not merely the concentration of artifacts but carbonaceous discoloration of the ground can be used to convey some idea of the size and nature of habitations. These were clearly not earth-houses of the kind associated with the Gravettian of South Russia, nor even the partially dug-in structures like those of the later Mesolithic settlement at Farnham. Nor would the size of the hearths suggest that they were tents, although in one case an industry of the type Schwabedissen has in mind was discovered by Rust to be associated with apparently intentional settings of boulders like those of some Eskimo tented encampments, the normal sort of dwelling would seem to have been some kind of light brushwood shelter or wind-break. Nonetheless the settlements were not infrequently of considerable size for a hunting community; at Rissen Site 14 camping debris in the form of artifacts or charcoal occurred over an area extending for several hundred metres. Similar dimensions are recorded for some of the sites of the East and Central European Gravettian.

Owing to the superficial nature of most of the sites, and their chemical environment, organic artifacts are totally lacking, and the cultural theory proposed rests solely on the typology of the flint implements. The dominant element is always provided by the scrapers which, to judge from the figures quoted, normally contribute between 70 to 90 per cent. of the assemblage of finished tools. The second place in descending order of importance is occupied by the burins (normally at the rate of about 10 per cent.) while the backed blades chosen to characterize the tradition seem never to exceed 10 per cent. and are sometimes as low as 2 per cent. The only other type of importance is a grooving or piercing tool known to German prehistorians as the Zinken, which occurs sporadically, and perhaps ultimately derives from the equivalent tool-form of the Hamburgian. True microliths, and above all axes, are conspicuous by their absence. The assemblages are to this extent 'Paleolithic' rather than 'Mesolithic' in typology. It is fortunate, however, in our present incomplete state of knowledge of the sequence of this area, that we do not have to rely on this observation alone for evidence of dating. The great dwelling-place at Rissen was overlain in places by a well-defined horizon of the Ahrensburg culture from which it was separated by a substantial sterile formation.

The Ahrensburg in turn is elsewhere reliably dated to the Upper Dryas phase, which corresponds to the last period of tundra conditions and the last significant ice advance in

northern Europe, dated to 8800–8100 B.C. It is thus clear that the penknife-blade industries are at least in part older than the Younger Dryas and may be presumed to have been established as far north as Hamburg not later than the end of the Allerød, or some time in the 10th millennium. As for the earliest possible limit of their dating, this is less easy to establish as yet, and the most significant data available seem to be provided by a typological comparison with the flint element in the equipment at Andernach. This is claimed to suggest a later rather than an earlier date relative to the South German late Magdalenian for which, as already mentioned, the earliest probable age lies towards the beginning of the Allerød.

Evidence of the latest date of survival of the penknife-blade assemblage is once again mainly typological, and resides in the presence at certain sites of possible traces of Ahrensburg influence. There are indeed some slight grounds for suggesting that the latter tradition lasted later still, perhaps locally even into the Pre-Boreal phase of the 7th millennium (though it can scarcely have continued into the Boreal itself, in view of the ubiquitous occurrence by that time of true microlithic and axe industries throughout the area in question).

Even if this is so there is certainly nothing to suggest that the penknife-blade industries followed suit. In a word we are probably justified in regarding the newly identified group of industries as characteristic of the latter part of the Allerød and early Upper Dryas.

The author's conception is that they represent the first peopling of the Low Countries by epi-Magdalenians coming from a particular group of settlements in the Middle Rhine area. On the strength of relatively minute typological distinctions he is prepared to advocate a subdivision of the Late Magdalenian north of the Alps into three distinct groups, a tripartite subdivision of the penknife-blade industries themselves, and he draws far-reaching and detailed conclusions about their origin and movement. In all this he may conceivably be correct, but it is perhaps a pity that he does not make a more determined attempt to present the quantitative as well as the qualitative aspect of his data. Whatever criticisms of detail may be levelled against the comprehensive statistical analyses recently developed by F. Bordes and his collaborators, it must be admitted that, in problems like those discussed in this book, they do at least provide a more concrete basis for argument than the notoriously subjective results of a too meticulous typology. Until therefore Herr Schwabedissen has published his evidence in some such more readily assessable form it is likely that the acceptance of the more speculative aspects of his interpretation will remain in suspense. None the less it seems already probable that he has truly delineated the character, and the distribution in space and time of a hitherto unrecognized culture group in the epi-Palaeolithic of north-western Europe. This is an interesting contribution, and one well worth the attention of investigators working on the Late Glacial and Early Post-Glacial periods in this country.

C. B. M. MCBURNEY

UR EXCAVATIONS, VOL. IV: THE EARLY PERIODS. *By* SIR LEONARD WOOLLEY.
British Museum, 1956. £5 15s.

What is first notable about this book is that it fills a long outstanding gap in the publication series of the 'Combined Expedition'. It must be a matter of justifiable satisfaction both to the author and to the two institutions, British and American, who sponsored the Ur dig, that its publication has finally proved practicable. Indeed, it may be seen as an act of good faith, discharging a responsibility of the kind whose gravity is not always properly appreciated.

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To the reviewer, on the other hand, it presents a curious problem, since it has, if one may use the expression, 'come of age prenatally'. Ready for publication in 1935, its production only after a delay of twenty years is explained in a foreword, which adds that it is now published as it originally stood, 'except for a few omissions, justified by the advance of knowledge in view of more recent discoveries'. Whether or not some amendments and additions to the text might not have been similarly justified, must have been a question subordinated to practical considerations. The presentation of evidence of course remains unaffected. It is done with the meticulous thoroughness to which one has become accustomed in Sir Leonard Woolley's reports, and its analytical-statistical treatment is exemplary. It is the attempts at interpretation which naturally suffer from their long sojourn in the 'deep-freeze' of passing time.

The volume appears as no. iv in the distinguished and now familiar series, *Ur Excavations*, and is sub-titled 'The Early Periods'. Apart from the Royal Cemetery (vol. II), it deals with all the finds earlier in date than the Third Dynasty, at Ur itself and at one neighbouring site, Mereijib. The material described comes mainly from soundings made at the northern and southern end of the temenos and a large proportion is derived from graves. The expedition's primary preoccupation during all these excavations was with the character and relationship of the three successive cultural phases preceding the institution of dynastic kingship. (These, one must remember, had only been satisfactorily defined as recently as 1930, when names for them were agreed upon by the International Congress of Orientalists at Leiden.) A good deal of interest was also concentrated on the implications of silt deposits in the deepest levels of certain soundings. Finally the Early Dynastic and Sargonid remains were also carefully studied.

The results of all this work are now presented; and today it would be idle to consider them except in the light of knowledge which we have subsequently acquired. Two decades of continued discovery have in the meanwhile created a new archaeological background, against which the significance of these earlier finds and the minor errors in their contemporary interpretation now begin to fall into orderly perspective. Perhaps, indeed, it is the absence in these pages of any reference to a work published more recently than 1935, which distracts one's attention with thoughts of more recent developments. Certainly their sequence has been impressive.

At Eridu and Tepe Gawra, for instance, we have seen monumental architecture carried back to the beginning of the Al 'Ubaid period and even beyond. Work at the former site and that of the Germans at Qal'at Hajj Mohammad (which is better published) have lengthened and elaborated the 'Al 'Ubaid' pottery sequence beyond recognition. As for the Ur 'Flood' in its 'Al 'Ubaid' context, Woolley's related discursion on the formation of the Lower Mesopotamian plain is based on de Morgan's deltaic advance theory, which in the light of a recent study by geologists (Lees and Falcon in *Geographical Journal*, cxviii, Part I) begins to look like an oversimplification. Then there is the Jemdet Nasr culture, which has since been combined with a much needed subdivision of the Uruk period to make an (awkwardly named) 'Protoliterate' phase, again with extraordinary architectural manifestations at 'Uqair, Eridu and elsewhere. The makers of the famous 'Gray Uruk' pottery can no longer be comfortably derived from the Anatolian plateau, since most of the parallels once found for their wares, like the 'Gray Minyan' mentioned by Woolley, are now dated a thousand years later. At the Diyala sites in the later 1930s new sub-divisions of the Early Dynastic period were defined and are now generally accepted.

SETON LLOYD

ANTIQUITY

NOTES ON PREHISTORIC AND EARLY IRON IN THE OLD WORLD. By H. H. COGHLAN. *Pitt-Rivers Museum, Oxford. Occasional Papers on Technology*, No. 8, 1956. pp. 220; 16 photographic plates, 57 figures in the text. 25s.

The book is, as it were, a second volume to Mr Coghlan's previous publication in the series which was on copper- and bronze-working. The Pitt-Rivers Museum is to be highly congratulated on issuing so valuable a set of studies as are included among these *Occasional Papers*.

The archaeologist will be grateful to the author for having reduced to something that he can more or less understand the complicated processes in the production of iron. Gratitude should also be expressed for Mr Allen's chapter explaining some of the metallurgical terms used. Especially should thanks be extended to the Director of Research and Technical Development of Messrs Stewarts and Lloyds for all the labour he has put into providing analyses of numerous irons.

Metallic iron has been known to man from very early days. He found it in the form of meteorites lying about on the ground, and a good account of meteoric irons is given on pp. 24 ff. But the finding of the metal ready made could never have led to the discovery of the method of extracting it from the ore. Also the old-fashioned idea that it could be done by dropping a lump of ore into the camp fire is shown to be quite untenable. Mr Coghlan argues convincingly that the smelting of an iron ore could only have occurred among a community, or rather perhaps, communities, who were already using closed furnaces. Such were the peoples living north or north-east of the Fertile Crescent, somewhere or other in the Armenian regions. Such furnaces producing the requisite heat had been in use for pottery burning from very early days. Red oxide of iron was also being used for painting the pottery at that time. Hence, we have in the earliest times of civilization the necessary type of furnace and also iron ore in use together. It would not be unlikely for lumps of iron ore to find their way into such furnaces from time to time and to get reduced to metallic iron.

This is not just an attractive theory for there is interesting evidence to that effect. An elaborate furnace was found at Arpachiyah on the north-eastern edge of the Fertile Crescent. This was for firing pottery. Some thousands of years later an entirely similar furnace was being used in Etruria, but this time for smelting iron (fig.13). Clearly the iron-smelting furnace of the Near East originated in the pottery kiln.

When iron had been produced it seems extraordinary that the workman should have troubled more about it, especially that he should have laboured at it until he had produced a metal which as the centuries passed came to be more desirable than copper or even good bronze. What the smelter found in his furnace was a spongy mass of metal and charcoal. This was by no means ready for use, but required intense labour by hammering before most of the charcoal could be driven out and the whole reduced to a fairly serviceable mass, which was then a lump of wrought iron. Wrought iron, often of a steely nature, is what ancient and also modern primitive iron is.

The Chalybes are reported to have smelted river sand. If so, the iron ore that they got there would have been so finely divided that it must have been smelted in a container, i.e. a crucible. A sealed one would have produced steel, hence the excellence of their product. But apart from this, steel did get made now and again under exceptional circumstances. Also exceptionally, the smelter might even have the misfortune to find that he had let his furnace get overheated and that he had produced a lump of cast iron, which was useless to him. Such a disaster had occurred at Geoy Tepe in the late 3rd millennium B.C. Geoy Tepe is in Azarbaijan, away to the north-east of the Fertile Crescent, hence in the neighbourhood of the presumed home of iron-working.

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In reports of primitive iron-smelting the liquid mass of iron is often mentioned. This is incorrect. It is not the iron that melts but the slag, the iron remaining as a spongy mass at the bottom of the furnace. In the ordinary way a very large proportion of the iron, even as much as nearly 60 per cent., remains in the slag and is lost to the workman. To remedy this a flux ought to be added, generally lime in one form or another, for this enables the iron to separate more freely from the slag. In Europe this was sometimes done in Roman times, but apparently not as a regular process even as late as that. The knowledge of the benefit to be derived from the use of a flux seems scarcely to have reached Africa even yet, for it is only very rarely that reports include a mention of it, but then they are inaccurate and far from complete.

Reports from Africa are very unsatisfactory, for they do not come from metallurgists. It is an unfortunate state of affairs, for Africa is a living museum of many methods of work and they are fast disappearing. What a qualified observer can discover is to be seen in Bellamy, 'A West African Smelting House', *Journal of the Iron and Steel Institute*, LXvi (1904), pp. 99-120. He found the head smelter to be an extremely intelligent man and willing to explain every operation as it took place. His product was far better than the trade iron. Mr Coghlan says that unless they are conical, the finding of tuyères is not necessarily evidence for the use of bellows, though it generally is. The use of bellows by no means implies a technique higher than the use of the natural draught.

The Iron Age is late in appearing in India; perhaps by 1000 B.C. in the north, but not until between 500 and 200 B.C. in the south. It did not reach China until very late, not until the 3rd century B.C. Then, curiously enough, the Chinese became the first people to make practical use of cast iron. In fact they seem to have cast iron almost as soon as they got it. In the sixth century a Buddha 5 metres high was cast and some centuries later a lion 20 ft. high and 18 ft. long, and soon afterwards, in the 11th century a whole pagoda 70 ft. high was made of cast iron. The reason of this facility in casting was probably due to the highly suitable coal which was available to provide the necessary carbon in the smelting. Its high proportion of phosphorus and low sulphur content enabled the iron to melt at a temperature of only 980 to 1000° C. which is lower than that required to melt copper.

It is astonishing to find that in the 6th century B.C. a spearhead from Syria was made of a number of compacted laminations, and by the 3rd century A.D. swords were decorated in Denmark with herringbone patterns wrought in the material itself. Damascened swords were being made in Merovingian times, a process which seems to have evolved independently of the Oriental craft. To this study is added a valuable account of the art of the swordsmith in Japan which produced the splendid swords in a similar fashion. The earliest of these swords seems to be one in the Pitt-Rivers Museum, which is dated about A.D. 1138.

Several instances of iron dating to about 2500 B.C. in Mesopotamia are quoted. The reviewer would point out that they would be about contemporary with the Great Pyramid in Egypt, so that they make it quite credible that the much discussed piece of man-made iron that was found there is indeed ancient and of the date of the building. Another famous and much discussed piece of iron is the axe-head from Ras Shamra on the Syrian coast. Owing to its analysis it has been thought to be a meteoric iron, but actually it was probably smelted from the mineral pyrrhotite. But here a difficulty supervenes, for this is a pyrites with a very high (40 per cent.) sulphur content, and with sulphur the early smelter was not equipped to deal.

The cube that was found in a Middle Minoan grave at Knossos has been claimed as iron. But on enquiry Mr Forsdyke said that that was only because it looked like iron. The reviewer would suggest that it is probably a piece of metallic looking haematite

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which is most deceptive. Numbers of dated specimens of iron have been recorded and discussed and many of them are analysed by Messrs Stewarts and Lloyds. The Pitt-Rivers Museum did valuable work in obtaining so many for study. However, studies of six specimens from Egypt are taken from Carpenter and Robertson who give them various dates between 1200 and 700 B.C. This is very early for so many pieces and one would like to know how reliable the dating may be.

It has been shown earlier that the iron-industry almost certainly originated to the north and north-east of the Fertile Crescent. To what was said above we may add that great strides were early made in that area in the perfecting of the smith's tools, if we may judge from the Assyrian examples of the early seventh century. They are heavy and powerful and have a thoroughly modern look. They had been left behind at Thebes in Egypt after one of Assurbanipal's invasions along with a helmet to certify their origin. Assyria is next door to the presumed home of iron-working.

We have all heard the story of the soft iron swords that bent at each blow and had to be straightened again before further use. Actually one such sword is known at Bergamo in Italy of the La Tène Period, c. 50 B.C., and there is another similar one of the same period in the Basle Museum. *Per contra* along with these, and of the same age, there are a couple of swords of true steel.

The author does not mention that strange belief that the iron-industry originated among the Negroes in Africa and spread thence over the whole world. It has, of course, been consigned to oblivion by the advance of archaeological research, but it was strongly held by the previous generation of ethnologists.

Finally a caveat should be entered against the common confusion between 'smelting' and 'melting'. On p. 51 even Forbes falls into the trap speaking of washing for gold in dust and nuggets 'which was smelted in Egypt in crucibles'. The gold was obtained in metallic form and could not be 'smelted' from the ore. It was 'melted' in the crucibles which is what the writer means. The French and Germans do not even attempt to distinguish between the two processes but use 'fondre' and 'schmelzen' for both indiscriminately.

Besides the large number of plates and figures in the text, the book is completed with a long list of references and a full index.

G. A. WAINWRIGHT

SCIENCE AND CIVILIZATION IN CHINA. vol. II. By J. NEEDHAM. Cambridge University Press, 1956, 19 × 25 cm., xxiv + 967 pages, 13 figures, 12 tables. Price 80s.

Assisted by Dr Wang Ling, Professor Needham has now published the second volume of this series, which volume is devoted to the history of scientific thought in ancient China. This one is even more important than the first for it deals with the world of ideas from which the Chinese appreciation and study of science and technology arose. We are introduced to this world, which is foreign to most of us, in four chapters. These deal with the Confucians and Confucianism, the Taoists and Taoism, the Mohists and the Logicians and the Legalists.

The author deals extensively with the fundamental ideas of Chinese science, the origin and development of the Five-Element theory, the enumeration orders, the theory of the two fundamental forces, the philosophy of organism, macrocosm and microcosm and the system of the Book of Changes (which was much admired by Leibniz). A review of the different types of divination (including astrology and geomancy) is combined with a discussion of the rise of a sceptical tradition.

We are then told of the Buddhist evangelization of China and the impact of this foreign

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system on Chinese thought. Two further chapters discuss the further story of Chinese Taoism and Confucianism, the later idealists, monists and a 'new, experimental philosophy'. The final chapter is devoted to the discussion of human law and the laws of nature in China and the West. A very detailed bibliography and an excellent index form the tail end of the book.

The important feature of this book is the extent to which extracts of the original works (in translation) are given throughout the chapters to substantiate the conclusions which the author draws. There is always a danger in putting forward extracts to support a theory if they are not long enough to give the exact context of the original and to allow the reader to draw his own conclusions from them, comparing and contrasting them with those of the author. In this case Professor Needham has really given us a chance of reading complete paragraphs of treatises which up to now have meant little to those who do not read Chinese. Given the difficulties of translation it would be interesting to have the view of Sinologists on some of the passages in this volume, and we would also urge on Chinese scholars to start producing complete translations of some of the fundamental Chinese essays rather than general surveys of Chinese thought. However, this is a programme for the future, and it should not imply that this new volume of Dr Needham's planned series is not of the utmost importance to the historian of science and technology. It deals with concepts and theories with which he was only vaguely familiar (partly from antiquated translations) and which are now available to him with very liberal extracts from the originals. This volume is basic for any further discussion of specific Chinese sciences and techniques, and there is no doubt that it is a masterpiece of erudition and synthesis. We look forward to the further volumes of these series, which, we hope, will be as complete presentations of evidential material as this second one.

R. J. FORBES

DAS PFERD IN PRÄHISTORISCHER UND FRÜHER HISTORISCHER ZEIT.
By FRANZ HANČAR. *Verlag Herold, Wien*, 1956. 348 *Austrian shillings*.

This is an important study of the horse in prehistoric and early historic times. As the author says at the end (p. 564), the materials are abundant, and it was well worth while collecting them into a book, which not only records the finds but also discusses the cultural associations and wider connections of the evidence—a most complicated affair.

The author is well qualified for such an undertaking. He is careful in his interpretation of the finds, and does not allow himself to be dominated by the theoretical aspects, as one might expect in such a book. He is familiar with the Eastern as well as the Western material and the Near Eastern. The present reviewer found very few inaccuracies in matters of which he has first-hand knowledge.

It is obvious that the author is an archaeologist and not a zoologist; the horse is studied, not as a thing apart but in its relation to man; but that surely is the right way of trying to find out how it was tamed and brought into the service of man. There is, of course, little to be gleaned about domestication from a study of the horse's bones; wild horses did not change physically when they began to become associated with man. While most other domesticated animals became smaller, the horse retained its fine appearance, doubtless because it was well fed. Cattle and pigs after many generations became rather smaller and their appearance altered for the worse. The horse, however, was the pride of its owner, who wanted it to be able to travel fast along roads and across country.

When and where did man first domesticate the horse? And was that event connected with the domestication of other animals? These problems are basic, and Hančar tries to solve them. The area in which domestication began should be one in which there were

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plenty of wild horses and in which perhaps there also existed a culture which contained other domestic animals. Hančar agrees with ethnographers like Birket-Smith in regarding the domestication of the horse as not being an isolated phenomenon. Jarmo provides the oldest evidence of the domestication of animals, but who can say that there may not have been earlier instances?

The author favours strongly the Tripolye culture of South Russia as the leading culture for the training of horses, and he may be right; at any rate up to the present time no earlier area can be found. The statistics of horse-bones in relation to those of other domesticated and wild animals is significant, and is reproduced here in part (from his Table 24):

<i>Tripolye stages</i>	<i>Horse</i>	<i>Ox</i>	<i>Wild animals</i>
A			
3000-2700 B.C.	1%	10.5%	52.5%
B			
2700-2000 B.C.	6.5%	41.0%	14.0%
C			
2000-1700 B.C.	19.0%	26.0%	29.0%

It is not until the third stage (C) that there is found a bone bit—decisive proof of a domesticated horse. Such bits have been thoroughly studied, together with other cultural remains, such as of carts, which tell us more about the use of the horse. Hančar's great book shows what an important rôle the horse has played in the history of man. It is most interesting, if not always easy, to read. The illustrations are quite good; but in a book that will be used for a long time to come and be found in every archaeological library, the maps should have been better and clearer.

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